

**ADDIS ABABA UNIVERSITY  
COLLEGE OF HEALTH SCIENCE  
SCHOOL OF PUBLIC HEALTH**



**Assessment of Household Food Security and Nutritional Status  
of Women in the Context of High Food Price in Addis Ababa**

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ADDIS ABABA, ETHIOPIA

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## Acronyms

BMI	Body Mass Index
CED	Chronic Energy Deficiency
CSA	Central Statistical Agency
DDS	Dietary Diversity Score
EDHS	Ethiopian Demographic and Health Survey
FANTA	Food and Nutrition Technical Assistant Project
FAO	Food and Agriculture Organization
FEWS	Famine Early Warning System
FGD	Focus Group Discussion
FI	Food insecurity
GDP	Gross Domestic Product
GTP	Growth and Transformation Plan
HDDS	Household Dietary Diversity Score
HFIAS	Household Food Insecurity Access Score
HH	House Hold
HFI	Household Food Insecurity
HFS	Household Food Security
IFPRI	International Food Policy Research Institution
MDG	Millennium Development Goal
NGO	Non Governmental Organization
N-S-Lafto	Nefas Silk Lafto sub-city
SSA	Sub-Saharan Africa
UNDP	United Nations Development Program
UNFPA	United Nations Fund for Population Activity
UNICEF	United Nations Children Fund
UNS	United Nations system
USAID	United States Agency for International Development
VAM	Vulnerability Assessment Mapping
WFP	World Food Program
WHO	World Health Organization

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## **Abstract**

**Background:** Since recently, the world's economic crisis, mainly the high food price is increasing the number of poor people and aggravating their living conditions. In big urban areas of Ethiopia like Addis Ababa where populations rely on market based household food supply, increasing price of food and nonfood commodities can threaten households' food security status. In many societies, women bear the brunt of the food price crisis. Thus, it is crucial to generate evidence about the food security of urban households and women's nutritional status during time of high food price.

**Objective:** To assess households' food security status and nutritional status of women in the context of high food price in Addis Ababa City

**Methodology:** A community based cross-sectional study using both quantitative and qualitative methods was conducted from January 18 to February 14, 2012. A total of 550 households were selected from three sub-cities of Addis Ababa using multi stage sampling technique. Food security status was assessed using Household Food Insecurity Access Score, and weight and height were also measured using standardized weight measuring scale and height measuring board. Data were collected using questionnaire based interview with household heads. Qualitative method using focus group discussion was employed to explore the possible effect of food price on household food security, and people's perception about food security.

**Result:** This study found that 75% of households were generally food insecure and 23 % were already in hunger state. Reduction in meal size and shifting to poor quality/less expensive food types/ were common coping strategies to high food price used by households. Household income and educational status of household head were significant determinants of food security. Households with higher food insecurity score have lower dietary diversity and are less likely to consume high quality diets. About 12.7% of women in the sample were underweight while 26% were overweight or obese. Being overweight was significantly associated with better dietary diversity of households.

**Conclusion and Recommendation:** The study revealed that about three fourth of households were food insecure which forced them to reduce their meal size and quality with nearly a quarter of households were suffered from hunger. Household food insecurity was common among the low income households and those headed by uneducated, daily wagers and government employed household heads. Beside subsidization of food items at affordable manner, policy makers should work on stabilization of food market, and create opportunities and capacities for households to increase their per capita income.

# 1. INTRODUCTION

## 1.1. Background information

Food is a basic necessity to life. Today, the world produces enough food to feed all seven billion of its inhabitants—but nearly a billion people still go without food associated with distribution problems (1). Food security is an essential, universal dimension of household and personal well-being. The deprivation of basic need represented by food insecurity and hunger are undesirable in their own and also are possible precursors to nutritional, health, and developmental problems.

The target of first Millennium Development Goal (MDG) is to halve the percentage of people suffering from hunger and living in extreme poverty by 2015. However, it seems hard to realize this target mainly due to continuous food crisis (2). The food price crisis in 2008 have pushed at least 100 million people back into poverty in 2008 and erased at least four years of progress towards the MDG1 target for the reduction of poverty. The household level consequences of this crisis were most acutely felt in low income developing countries where 50 percent rise in staple food prices causes a 21 percent increase in total food expenditure, increasing these from 50 to 60 percent of income (3, 4).

In February 2011, the World Bank Food Price Index reached its 2008 peak, after rising by 47 percent since June 2010. World market prices of sugar and edible oil have been rising since June 2010, being 86 percent higher for sugar and 59 percent higher for soybean oil in February 2011 (5). The overall impact of soaring food price is manifested by under nutrition, driven by house hold food insecurity (HFI) and reduced income. For the first time in humanity's history more than a billion people became hungry in 2009. Out of undernourished persons in the world, two-thirds live in just seven countries (Bangladesh, China, the Democratic Republic of the Congo, Ethiopia, India, Indonesia and Pakistan) (6).

In Ethiopia about 75 percent of food consumption is comprised of local staples that are not traded much internationally such as sorghum, and *teff* - dampening the impacts of rising prices of imported cereals (5). However, since 2008 the country exhibited the highest rate of inflation in its history and this is continued to occur in 2011/2012 (7, 8).

## **1.2. Statement of the problem**

Although most of the world's poor people now live in rural areas, the numbers of urban poor are substantial and cannot be ignored. Out of 1.3 billion people lived in extreme poverty (i.e., on the equivalent of less than US \$1 per day) in 1993, 19 percent (247 million people), lived in urban areas. By 2002, the population in extreme poverty had declined to 1.2 billion people, but the urban share had increased to 25 percent, and the number of poor urban residents had increased to 300 million (9). Out of the 848 million chronically undernourished persons in 2005, 20 percent were living in urban areas. Moreover, 70 percent of them were women (2).

Although the majority of the world's undernourished people (578 million) live in Asia and the Pacific, the highest prevalence of undernourishment is found in sub-Saharan Africa. In 2005–2007, the prevalence of undernourishment was 30 percent for sub-Saharan Africa, compared with 16 percent for Asia and the Pacific (10).

In Ethiopia, almost 40 percent of the total population in the country and 57 percent of Addis Ababa population lives below the international poverty line of US\$ 1.25 per day (11). Average daily energy intake is estimated at 16-20 percent below the accepted minimum, while diseases due to deficiencies in vitamin A, iron and iodine are widespread (12).

Over 80 percent of urban households (HHs) in Ethiopia were found to be dependent on markets and food access is a function of household income and market price which together determine the purchasing power. Since August 2004 the Ethiopian food price index has been consistently higher than the world index (13). In big urban areas of the country like Addis Ababa, this market based household food supply, increasing price of food and nonfood commodities can threaten the households' food security status more severely.

The nutrition status of individual HH members is a product of food security, access to health and environmental sanitation services, and maternal and child caring practices. Within the HH, women are especially vulnerable as they are usually the first to make sacrifices when the financial situation deteriorates. A woman's nutritional status is both an important indicator of a woman's overall health and a predictor of pregnancy outcome. Women who are underweight prior to pregnancy and who gain little weight during pregnancy face are at increased risk of complications and death (4). Therefore, it is clearly important to assess the effect of household food insecurity on women's nutrition especially during crisis times.

### **1.3. Justification of the study**

The current high food price is affecting the poor urban HHs both in the world and particularly in Ethiopia. This condition may lag the movement towards meeting MDG1. The Ethiopian government had prepared five year growth and transformation plan for 2010/11-14/15. This plan indicates that Ethiopia would achieve halving poverty by 2015 and projects that both income and food poverty will reach 22.2 % and 21.22 % in 2014/15 from 29.2 % and 28.2 % in 2009/10, respectively (14). Currently, unlike the rural community, the urban HHs are not considered in food security programs like productive safety net programmes (14).

In Ethiopia, the increasing urban poverty, increasing food price, and urban population growth are emerging challenges requiring policy responses. As a result scientific evidences about urban food security status and how people in the urban areas are coping with high food price and food insecurity are crucial to deal with these challenges. To the investigator's knowledge, available data about food security are old and there is no study about food security status both at HH and individual level in Addis Ababa.

This study is, therefore designed to assess the level of HH food insecurity, and its effect to women's nutrition, to identify HHs' perception about food security and coping strategies for high food price in Addis Ababa. It will also explore the impact of soaring food price on the food security of the households in the city. This study is hoped to help the government and other partners to design effective interventions to assure household food security and prevent hunger and mal nutrition in an urban setting.

## 2. LITERATURE REVIEW

### **Concepts and Measurements of food security**

The most widely used definition of food security is the one forwarded by World Food Summit in 1996 and broadly set as ‘Food security exists when all people at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life’. This definition integrates availability of nutritionally adequate food, access to food, and the biological utilization of food (15).

**Food availability** refers to the physical presence of food at various levels from household to national level; such food can be supplied through HH production, other domestic output, commercial imports, or food assistance.

**Food access** refers to the ability of a HH and its members to acquire enough food through production, exchange or transfer. Access to food through the market is an important component of HH food security which is affected by the total supply and demand of food, market integration and transport costs.

**Food utilization** refers to a proper biological use of food to obtain an appropriate energy and it is affected by access to nutritious diet, potable water, and adequate sanitation. Food utilization, which is typically reflected in the nutritional status of an individual, is determined by the quantity and quality of dietary intake, general childcare and feeding practices, along with health status and its determinants (15).

### **Measurements of food security**

The measurement of food security is based on the three pillars: access, availability and utilization. In this study the measurement of HFI will focus on access and some extent on utilization as measured by maternal nutritional status. So far there is no single standardized measurement method of food accessibility. Over the past several years, USAID’s Food and Nutrition Technical Assistance (FANTA) project has supported a series of research initiatives to explore and test different options. Finally FANTA develops a guide for implementing one such option, the Household Food Insecurity Access Scale (HFIAS), which is an adaptation of the approach used to estimate the prevalence of food insecurity in the United States (16). Another way of measuring HFS is through measuring the diversity of food consumed by the HHs.

## **Food price and magnitude of Food insecurity**

Higher food prices have two main effects on net buyers of food: an income effect through decreases in purchasing power of HHs; and a substitution effect through shifts to less nutritious food both of them leading to malnutrition and increase in morbidity and mortality. For example, the 2008 food price spike increased the number of undernourished people by an estimated 63 million (5). Both morbidity and mortality due to chronic illness are the final outcome of food insecurity. Household based survey in South Africa shows that the total for all-cause morbidity and mortality reported for the regional sample among *food secure* HHs was 34 percent, whereas rates among food insecure HHs was higher at 57 percent (17).

The dramatic increase in food price in 2008 has resulted in food insecurity even in developed countries. In 2009, 14.7 percent of United States HHs were FI at least some time during that year, essentially unchanged from 14.6 percent in 2008. This remains the highest recorded prevalence rate of food insecurity in the country since 1995 (15). About 79 percent of HHs in the three large cities of South Africa reported going without food in the second half of 2008 as a direct outcome of food price increases (17). However, the food crisis in 2007-2008 was by far a serious problem in low income and developing countries.

Households around the developing world, where food represents 60-80 percent of consumer spending, are suffering from domestic food inflation. Different studies have been conducted to see the impact of high food price in 2008 on family welfare and food insecurity in developing and low income countries. A study by Food and Agriculture Organization (FAO) using HH data from Malawi indicate that a 10.0 percent increase in food prices leads to a 1.2 percent income loss for the poorest quintile in rural areas and a 2.6.0 percent income loss for the poorest urban quintile. According to this analysis, only the richest rural quintile benefited from an increase in food prices (18).

National assessment of household food security (HFS) and nutrition in Bangladesh showed that about 25.0 percent of HHs became food insecure and purchasing powers of HHs have reduced significantly as the food expenditure increases from 52.0 percent in 2000 to 62.0 percent in 2008. In addition 34.0 percent of HHs have borrowed money as a coping strategies, and 22.0 percent have reduced their health expenditure (19). Another study in Bangladesh showed that self-perceived urban HFI status was increased from 39.0 % in 2007 to 66.0 % in 2008 ( $p < 0.01$ ). Urban HHs in the

poorest quintile in Bangladesh were forced to reduce the quality (87%), number of meals (28%) and the amount of food (62%) they consumed (20). A surveys by Oxfam and Save the Children found that in parts of West Africa, 33.0 % of respondents reported reducing the quantity of food that their HHs consume, while 22.0 % indicated that they had reduced the number of meals per day or cut out higher-priced foods (21). Food prices also typically induce lower spending on non-food items such as education and health which evils sustainable development. For example, following the 2008 world food crisis, 8 % of children of poor urban HHs in Bangladesh had stopped going to school (20). Malnutrition is therefore not just a result of poverty, it also causes poverty; and improved nutrition could be a driver of economic growth.

In Ethiopia urban food insecurity is mainly driven by drought, chronic poverty, increased consumption due to increased HH income, and increased food price. It is estimated that the problem of drought which is cyclical in Ethiopia, increases the chances of children getting malnourished by 41 percent. This translated into 2 million additional malnourished children in 2005 drought (22). Irrespective of the small percentage of urban population in the country, urban poverty and HFI has become a major economic challenge for the government (23). In 2008/9 a food security assessment by the World food program (WFP) Vulnerability Assessment and Mapping (VAM) in Addis Ababa indicated that the average per capita monthly in income in Addis Ababa was 243 *Birr*. Share of expenditure on food varied by poverty levels with the poor allocating about 67.5 percent of their monthly expenditure for food compared to 60.4% for the non poor (24).

In the 2008 food inflation, food expenditure formed 70 percent of total HH expenditure within which over two-third was spent on cereals alone. Food consumption scores in urban setting of Ethiopia has markedly reduced following the 2008 food crisis with greater reduction reported in Adwa (30 %) and Addis Ababa (20 %) (11). The common coping strategies during the 2008 food crisis in Addis Ababa include, shifting to less preferred/expense foods (84%), limit the size of meal (67%) reduce number of meals (50%). At the same time 25 and 15 percent of HHs had borrowed money and food respectively (24). A baseline national food security survey by Ethiopian Health and Nutrition Research institute (EHNRI) using HFIAS reported that 35 percent of HHs in Ethiopia were food insecure (25).

A study in slum areas of Bangladesh found that 89.8% and 61.8% of HHs in four cities of Bangladesh were FI and severely FI respectively (26). Magnitude of FI among Volunteer AIDS

Caregivers in Addis Ababa in 2009 using HFIAS was about 81% (27). Combined HDDS and HFIAS methods in West Africa revealed that 67% and 72% of HHs were FI in two rounds (28).

Household dietary diversity was also another important way of food security assessment especially in measuring quality and number of food varieties. One study in Dire-Dawa town among people living with HIV/AIDS found that the mean HDDS out of 12 food group was 7 (29) while the mean for the same food groups in Addis Ababa was 6.3 (27). Another HDDS study in Manica and Sofala provinces, of Mozambique in 2006 and 2007 found lower dietary diversity score of 4.1&3.8 respectively (30)

Regarding the determinant factors of FI, a study by Ejigayhu and his colleague, in Addis Ababa found that age, educational status, occupation of HH head, family size, and income of the HH were found to be significant determinants of HFS. They found that sex of HH head have no significant relationship with food security of the HH (31). Similar studies from Bangladesh revealed that there is no relationship between sex of HH head and HFS status while education and employment status of HH head and housing ownership were closely linked with it (26, 32).

Another study of food security incidence in Nigeria showed that sex, age, education and occupation of HH head, HHs' family size, and monthly income all are significant determinants of HFS (33). Another important issue in assessing food security is that there relationship between food access and diversity. Some studies like in Addis Ababa (27), Mozambique (30) and West Africa revealed that food access using the HFIAS is closely and significantly associated with dietary diversity of households.

The 2011 food price spike has resulted in an estimated net increase of 44 million more people in poverty, with 68 million net food consumers falling below the poverty line, and 24 million net producers being able to escape poverty. This adds to the 1.2 billion people already living below the extreme poverty line of US\$1.25 a day. This means that almost one in six people are still not getting enough to eat on a daily basis (5). In rural India, an increase in food price by 10, 20, and 30 percent have increased the number of poor people by 22.8, 45.6, & 68.5 million respectively. On the other hand 30 percent increase in food price in developing Asia has raised the number of poor people by 193.24 million (34).

In Ethiopia in spite of the continuous reports on food price trends for the year 2011, there is no evidence to see its effect on the HFS status. In 2011 In Konso, located in the Southern Nation,

Nationalities and Peoples region, Maize prices in August are 150 to 200 percent higher than prices in January 2011, and 200 to 300 percent from prices last year the same time; as a result, admissions of malnourished children are 80-150 percent higher than last year (35). In 2011, the annual food inflation rate in Ethiopia rose to 25.6 percent in April 34.7 in May 38% in July and 50 % for August indicating that the food price has continuously increasing (36). According to the Central Statistical agency, Year-on-year food inflation in February 2012 increased by 47.4 % as compared to February 2011, while non-food inflation increased by 21.4 % as compared with the same period. In February 2012, increases were observed in the prices of cereals, pulses, vegetables, fruits and spices (37).

### **Food Crisis and Maternal nutrition**

Women often become shock absorbers of HFI, by reducing their own consumption to allow more food for other HH members. In most societies it is women who bear the brunt of the food price crisis. This is because women are primarily responsible for the management of food in the HH and buffer the impact of the crisis at the household level through decreased their consumption (38).

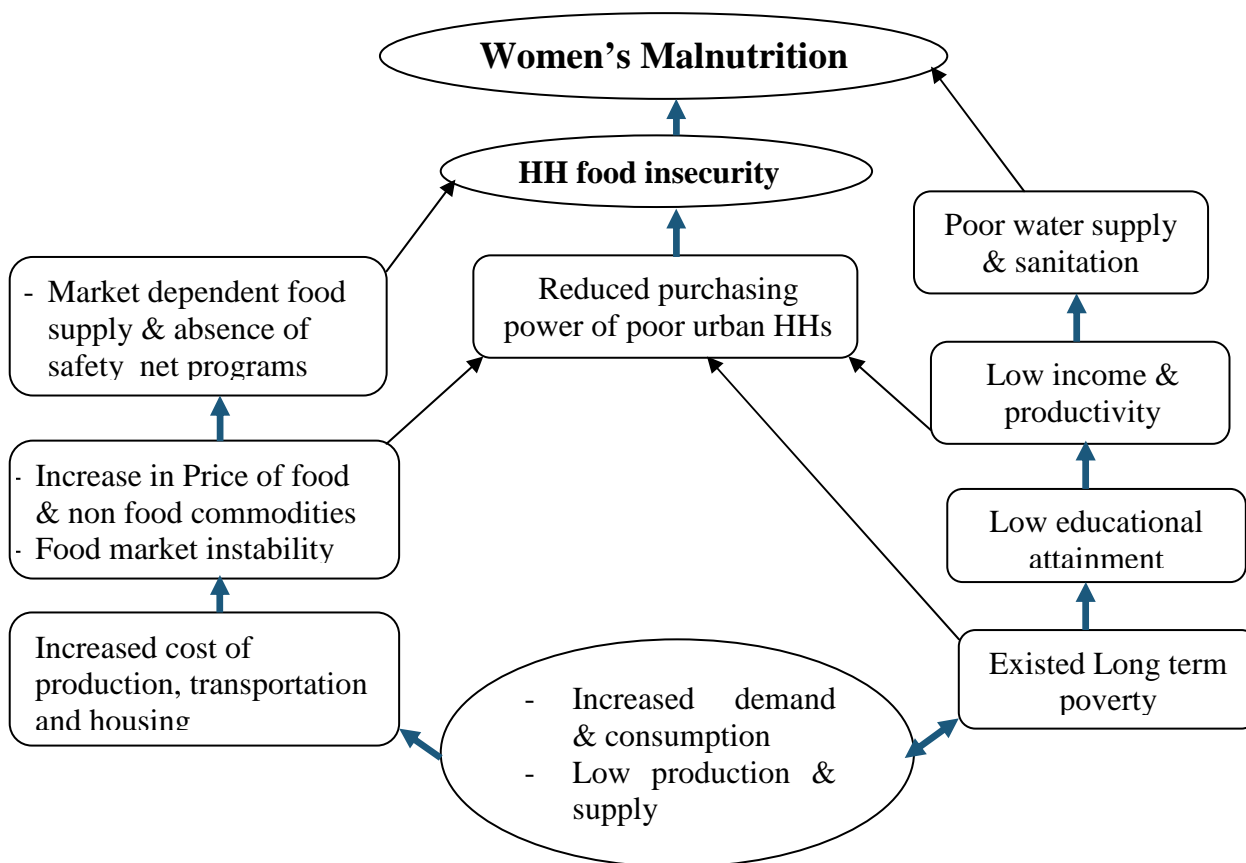
One cross sectional study in Colombia showed that, prevalence of underweight was 48% higher in women from households with moderate hunger and over 2 times higher among women from households with severe hunger compared with women from households that were food secure or insecure without hunger (39).

A study in south west Ethiopia showed that girls were twice as likely to report an illness when they were food insecure ( $P < 0.01$ ) and 3 times more likely than boys to report an illness when they were food insecure and a member of a food-insecure HH ( $P < 0.01$ ). Girls were 7.4 and 7.0 times more likely to report difficulties with activities because of poor health and having a feeling of tiredness/low energy compared with boys, respectively ( $P < 0.001$ ) (38).

Beside its contribution to maternal death, maternal under-nutrition is also associated with low birth weight, increased infant death and stunting. This effect will continue over the next generation through the stunted and adolescent pregnancies (4). The other dimension of food insecurity effect is that women who have experienced moderate to mild food insecurity were at high risk of overweight and obesity. A literature review in Australia found that the risk of obesity is 20 to 40 percent higher in individuals who are food insecure than food secured HHs (40). A study of more than 5,200 women from United States found that women living in food insufficient HHs had higher rates of overweight than those in food sufficient HHs (41).

Based on the 2011, Ethiopian Demographic and Health Survey report, overall, 3.4 % of women in Ethiopia and 2.7% in Addis Ababa are shorter than 145 cm. Twenty-seven percent of women in Ethiopia and 14.4% women in Addis Ababa were found to be malnourished (BMI less than 18.5). On the other hand, around 15.8% and 4% of women in Addis Ababa were overweight and obese respectively (42).

Generally, high food price is a major challenge of the world, especially for the poor and urban households in developing countries like Ethiopia. Household food insecurity as explained by anxiety and/or hunger and malnutrition are the consequence of high food price. Ethiopia is experiencing sustained high food price that can threaten the food security status of market dependent households. Women were believed as the first to face the effect of food crisis which may lead them to malnutrition. The effect of high food price and other factors on food insecurity and women’s nutritional status can be summarized as in figure 1 below.



**Figure 1: Conceptual framework of urban food insecurity and women’s malnutrition in Addis Ababa**

### **3. OBJECTIVES:**

#### **3.1. General Objective:**

- To assess households' food security status and nutritional status of women in Addis Ababa City

#### **3.2. Specific Objectives**

- To assess the food security status of households
- To assess the nutritional status of women of reproductive age group
- To assess factors associated with household food security status.
- To examine the effect of soaring food price on household food security and maternal nutrition.

## 4. METHODOLOGY

**4.1. Study area and period:** this study was conducted in Addis Ababa; the capital city of Ethiopia from January 18 to February 14, 2012. Addis Ababa was selected purposely because it is the largest city in the country where majority of households were dependent on market based food supply. The city has a total population of about 2,687,935 settled in about 662,728 HHs with average house hold size of 4.1 persons per HH. Women account for more than half (52.36%) of the total population of which 66.1 percent (948,754 women) are found in the reproductive age group that is between 15-49 years of age. Based on the 2007 population and HH census, the highest and the lowest unemployment rates were observed in Addis-Ketema (27.2%) and Bole (17.7%) sub-cities respectively. On the other hand, the highest and lowest percentages of HHs without any type of latrine were found in Akaki Kality and Arada Sub-cities respectively. Addis-Ketema sub-city, one of the study areas has a total population of 255, 092 and a total area of 8.98 square kilo-meters, being the most densely populated area in the city (23).

**4.2. Study Design:** A community based cross-sectional study using both quantitative and qualitative research methods was applied.

**4.3. Source Population:** All HHs occupied by Ethiopians located in Addis Ababa city administration.

**4.4. Study population:** The study was conducted on HHs from five administrative sub-cities in Addis Ababa

### 4.5. Inclusion and exclusion criteria

**Inclusion criteria:** all households occupied by Ethiopians and having at least one woman in the reproductive age group were included in the interview. Where more than one eligible woman was available in one HH, the one who is responsible for family care and/or HH head was selected.

**Exclusion Criteria:** Pregnant and less than two months postpartum women were not included in measurement of weight and height due to possible obstetric weight gain.

### 4.6. Sample size determination and sampling procedure (Quantitative method)

Sample size determination: The total sample size was calculated with the following assumptions:

‘p’ = the proportion of food insecure HHs,

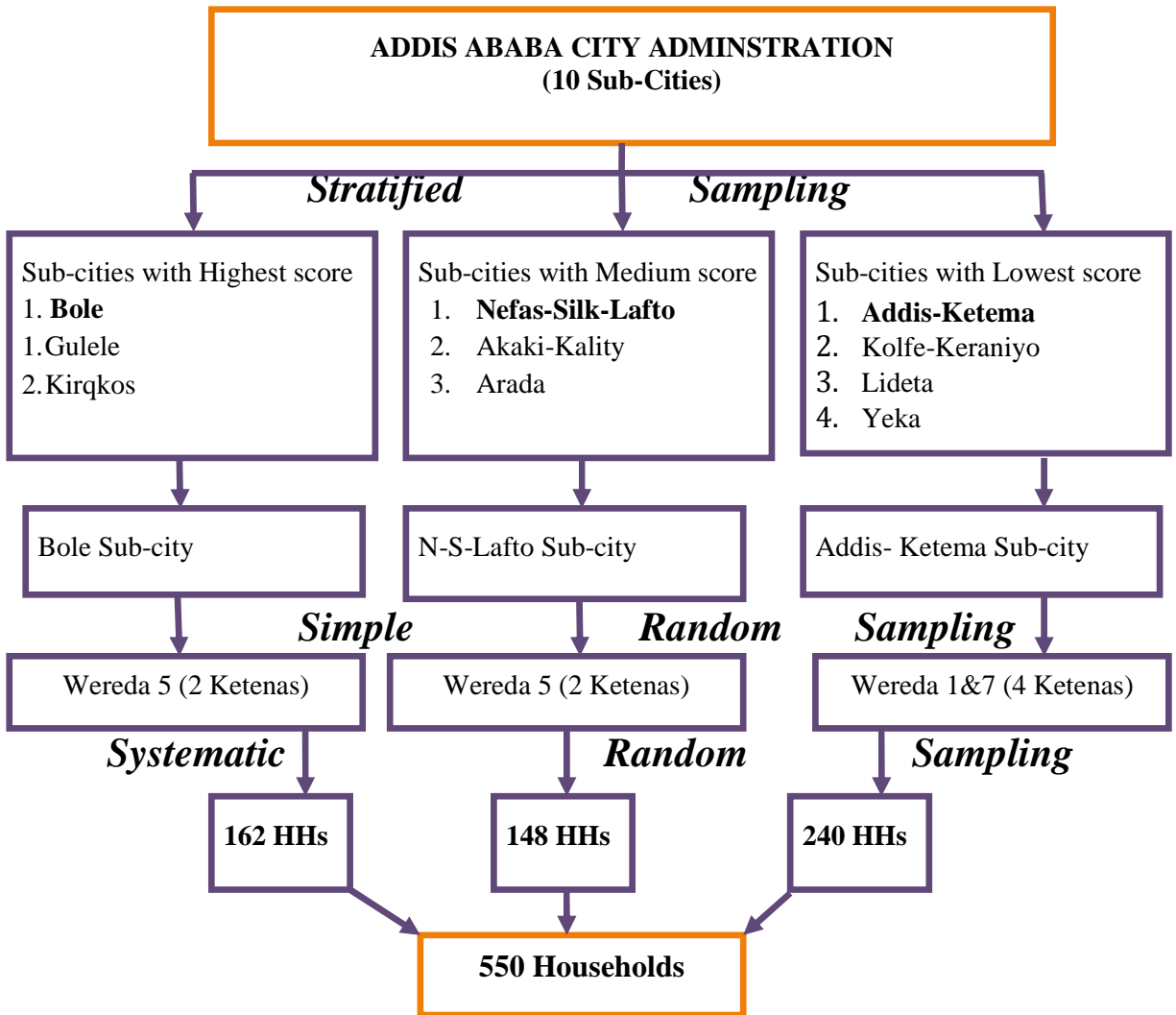
d’ = the margin of error for the study at 95% confidence level, and

‘n’ = the required sample size.

Using Epi-info Statcalc for single population survey at “p” = 35 % (25) with 95 % confidence level ( $Z_{\alpha/2}=1.96$ ,  $\alpha =0.05$ ) and 5 % margin of error ( $d=0.05$ ), the sample size (n) was 349. Adding a 5 % allowance for possible non response rate and multiplying by design effect of 1.5, the final sample size was 550. This sample was distributed across the three selected sub-cities proportional to their HH size found from census 2007 (23).

**4.6.1. Sampling technique:** As shown in figure 2, multi-stage sampling technique was applied. First the ten administrative sub-cities were stratified in to three groups based on their unemployment rate and percentage of HHs without latrine. The total sample size was distributed to the three strata proportional to their size of HHs. Based on the score given in each stratum as least, medium and most developed; one sub-cities was selected from each stratum. Then after, two woredas from Addis Ketema sub-city, and one wereda from each of Bole & Nefas-Silk-Lafto sub-cities were selected randomly.

Based on the clusters created for health extension program, two ‘*Ketenas*’ were selected randomly from each wereda. Finally, the ultimate study units (households) were selected using systematic sampling technique based on the list of HHs available with the Health extension workers. Household heads who were not volunteer to participate in the study were directly replaced by the next HH and HHs found closed in the first visit were accessed by second visit.



**Figure 2: Diagrammatic representation of sampling procedures and sample size distributions**

#### 4.6.2. Qualitative methods

In order to investigate people’s perception of food security, the severity of HH food insecurity, to identify coping strategies, and to explore the effect of soaring food price on HFS, qualitative method using focus group discussion was conducted. Generally three FGDs were conducted; two FGDs in Gulele sub-city wereda-6 administration offices while the other one FGD in Arada sub-city wereda-1 consumers’ work union.

#### Participants Selection and Procedures for Focus Group discussion

First, the investigator contacted and agreed with the Wereda-6 Health Office in Gulele sub-city and with the head of the consumers’ union in Arada sub-city to arrange the convenient time and place for discussion. Participants for FGD at Gulele sub-city were selected by the help of the health

extension workers and met in one room of the Wereda-6 Administrative Office while those in Arada sub-city composed of staffs of the union, and retailers and consumers who came to buy food commodity from the union were held inside the union main store hall.

After briefing the purpose and methods of the study, oral consent and permission to use tape recorder was obtained from participants. All group discussions were facilitated by the principal investigator and assisted by a note taker. About 80 percent of participants' ideas were recorded by tape recorder but most of participants in one FGD at Gulele sub-city were not volunteer for tape recording.

#### **4.7. Data collection methods and measurement tools**

In order to collect the information on HFS, questionnaire based interview was conducted with the HH head /care giver of the family (preferably mothers). Household food security level was determined using standardized set of questions derived from version 3 of the Household Food Insecurity Access Scale (HFIAS) measurement guide (16). This guide which was developed by the USAID's FANTA consists of nine occurrence questions that represent a generally increasing level of severity of food insecurity (access), and nine "frequency-of occurrence" questions that are asked as a follow-up to each occurrence question to determine how often the condition occurred.

##### **4.7.1. Household Food Insecurity Access Scale (HFIAS)**

In this study, the HFIAS shown in table 1 was used as a continuous measure of the degree of food insecurity in the HH in the last four weeks. First, the collected responses were coded as 0 or 1 corresponding to the occurrence question and as 1, 2, 3, corresponding to the frequency question (i.e., if Q1=0 then Q1a=0, but if Q1=1 then Q1a could be 1 or 2 or 3 etc.). The maximum score for a HH is 27 (the HH response to all nine frequency-of-occurrence questions was "often", coded with response code of 3); the minimum score is 0 (the HH responded "no" to all occurrence questions). The higher the score is the more food insecurity the HH experienced, and the lower the score is the less food insecurity a HH experienced. After summing the codes for each frequency-of-occurrence question, HHs were categorized in to four food security categories according to their insecurity severity giving the HFI access prevalence.

**Table 1: Classification of households based on their Food security status using HFIAS**

Category	Food security Status	Criteria
1	Food Secure	If (Q1a=0 or Q1a=1) and Q2 –Q9 = 0
2	Mildly Food Insecure	If (Q1a=2 or 3 or Q2a=1 or 2 or 3 or Q3a=1 or Q4a=1) and Q5- Q9=0
3	Moderately Food Insecure	If (Q3a=2 or 3 or Q4a=2 or 3 or Q5a=1 or 2 or Q6a=1 or 2) and Q7- Q9=0
4	Severely Food Insecure	If (Q5a=3 or Q6a=3 or Q7a=1 or 2 or 3 or Q8a=1 or 2 or 3 or Q9a=1 or 2 or 3)

#### 4.7.2. Household Dietary Diversity Score (HDDS)

Another way of assessing HFS status in this study is Household Dietary-Diversity Score (HDDS). Dietary diversity can act as an alternative indicator of food security. Research has shown that a more diversified diet is associated with a number of improved outcomes in areas such as birth weight, child anthropometric status, and improved hemoglobin concentrations. In addition, a more diversified diet is highly correlated with such factors as caloric and protein adequacy, percentage of protein from animal sources (high quality protein), and household income (43).

In this study, the 12 food groups recommended by FANTA were used to assess the dietary diversity score of HHs and amount of food and frequency of feeding were not included. There is currently no standard list of foods or food groups, and no cut-off point, upon which the international community agrees for a broad use in all contexts. Therefore, scores were used as discrete quantitative variables and were also divided into terciles to distinguish diets of high, medium, and low dietary diversity using the mean consumption of the sample population (43, 44).

#### 4.7.3. Anthropometric measurement

In order to assess the food security at individual level and to see its nutritional implication on women, nutritional assessment was done using Body mass Index (BMI) among women aged 15-49 years. Weight and height were measured using weight scale and height measuring board taken from Addis Ababa University school of Public health. A BMI less than 18.5 kg/m<sup>2</sup> was used to define underweight or under nutrition and a BMI of 25 kg/m<sup>2</sup> or above indicates overweight or obesity (43).

**Table 2: Summary of major areas and method of assessment in this study**

<b>Area of Assessment</b>	<b>Specific measurements &amp; methods</b>
HH Asset wealth	Ownership of HH like Tape/TV, bed, car etc. . . .
HH Income and Expenditure	Monthly reported income and Expenditure
HH Food Security	HFIAS and qualitative
HH Dietary diversity	Number of food groups consumed over the last 24 hours
HH Coping mechanism	Qualitative and quantitative
Food Prices changes and impacts	Qualitative exploration
Maternal nutritional status	Body Mass Index (BMI)

#### **4.8. Study variables**

Dependent variables: Household food security level (Secure, Insecure) and women’s nutritional status (undernourished, normal, overweight, and obese) were taken as outcome variables.

**Independent variables include:** HH characteristics such as, age, sex, education, and employment status of HH heads, family size of HHs, HH income, and HH asset possession.

#### **4.9. Field management and data quality assurance**

After developing the questionnaire for interview in English, it was translated to Amharic language and was pretested in 30 HHs out of the study areas. Some arrangements were made after the pre-test, and the required number of copies of the questionnaire was duplicated and prepared for field work. Six data collectors (4 health extension workers and 2 nursing graduates) were recruited and trained for half a day on how to conduct the interview and weight and height measurements. During data collection the principal investigator and another one trained professional have supervised all activities during the data collection. Data completeness and cleanliness were checked daily and questionnaires with missed variables were turned back to the data collectors for correction by revisit. The FGDs were conducted by the principal investigator and other note taker.

#### **4.10. Data processing and analysis**

After checking all questionnaires for completeness, data were entered to pre-formed Epi-info template and cleaned using frequencies and crosstabs. Then the data set was exported to SPSS version 16 for final analysis. The socio-demographic characteristics, dietary diversity and food security status of HHs were determined using descriptive analysis with categorical frequencies and

percentages. Multiple logistic regression was used to identify determinant factors of HFS and associations were established at  $P < 0.05$  with 95 % confidence interval. Regarding qualitative findings, first responses of all participants were transcribed, translated and summarized in each group. Then findings from each FGD were summarized into one category of responses for each specific question. Verbatim quotations were used to present qualitative results where appropriate.

#### **4.11. Ethical Considerations**

First, ethical clearance was obtained from School of Public Health; Collage of Health Science Addis Ababa University Institutional Review Board. Additional support letter obtained from Addis Ababa City Administration was disseminated to all respective woredas. Finally, after explaining the purpose and process of the research to the study subjects, informed consent was obtained from participants of each household. The confidentiality of participants' response was maintained.

#### **4.12. Operational definitions**

***Food secure HH:*** Household experiences none of the food insecurity (access) conditions, or just experiences worry, but rarely.

***Mildly food insecure (access) HH:*** worries about not having enough food sometimes or often, and/or is unable to eat preferred foods, and/or eats a more monotonous diet than desired and/or some foods considered undesirable, but only rarely. But it does not cut back on quantity nor experience any of three most severe conditions.

***Moderately food insecure HH:*** sacrifices quality more frequently, by eating a monotonous diet or undesirable foods sometimes or often, and/or has started to cut back on quantity by reducing the size of meals or number of meals, rarely or sometimes. But it does not experience any of the three most severe conditions.

***A severely food insecure HH:*** has forced to cutting back on meal size or number of meals often, and/or experiences any of the three most severe conditions (running out of food, going to bed hungry, or going a whole day and night without eating), even as infrequently as rarely.

**Dietary diversity:** the number of different foods or food groups consumed over a given reference period

**Body Mass Index (BMI):** is determined as weight divided by square of height or  $(\text{kg}/\text{m}^2)$ .

**Malnourished mother:** A woman who have a BMI score of less than  $18.5 \text{ Kg}/\text{m}^2$

**Well nourished mother:** A woman who have a BMI score between  $18.5$  to  $24.99 \text{ Kg}/\text{m}^2$

**Over weight:** a woman who has a BMI score greater than or equals to  $25 \text{ Kg}/\text{m}^2$

**Obesity:** a woman who has a BMI score greater than or equals to 30 Kg/m<sup>2</sup>

**Household Income:** It is the total income of a family contributed by all productive activities of HH members.

**Consumption expenditure:** is defined as all HH food and non food consumption expenditures for over all livelihoods of the family members.

**Household Asset** is the number and types of HH furniture and asset materials like basic HH possessions such as beds, table and chairs, sofa sets, radios and/or televisions, computers, jewelries, transport assets such as bicycle, motorcycle or car.

**Coping strategies:** Coping strategies are the means people employ to master, tolerate, reduce, or minimize the negative consequences of changes in food price and their food security status.

**Household:** Constitutes of a person or group of persons, irrespective of whether related or not who normally live together in the same housing unit or group of housing units and who have common cooking arrangements.

**Head of HH:** A head of a HH is a person who economically supports or manages the HH or for reasons of age or respect, is considered as head by members of the HH or declares himself as head of a HH.

**Member of HH:** All persons who lived and ate with the HH for at least six months including those who were not within the HH at the time of the study and were expected to be absent from the HH for less than six months.

**Household size:** Is the total number of members of a HH.

**Employee:** is any worker hired by someone on contract, permanent or temporary basis.

**Self employed:** This is an individual who works in his own enterprise using his/her own skills and generating his/her HH income without hiring any one. This doesn't include those merchants.

**Wage/salary:** includes all payments in cash or in kind made to employees in connection with work done for enterprise/establishment or activities.

#### **4.13. Dissemination of Findings**

The result will be submitted to Addis Ababa University School of Public Health and relevant stakeholders who might be interested in. Effort will be made to publish the results in national and international journals.

## **5. RESULTS**

### **5.1. Socio-demographic and economic characteristics of respondents**

Table 3a below shows the socio-demographic characteristics of the respondents. In this study, a total of 550 households (response rate of 100%) have participated. Out of the total 550 HHs, 218 (39.6%) were female headed, 418 (76.0%) were Orthodox, 100 (18.2%) and 28 (5.1%) were Muslim and Protestant respectively. The mean and median age of HH head were 45  $\pm$ 14.8 and 44 years respectively. The average family size was 5 with minimum and maximum size of 1 and 15 respectively.

Concerning educational status of HH heads, 146 (26.5%), were uneducated, 176 (32.0%), and 127 (23.1%), have attended elementary and secondary schools respectively, while only 18.4% of HH heads have completed diploma and above. One hundred fourteen (20.7%) household heads were unemployed, 94 (17.1%), were self employed while 91 (16.3 %) and 86 (15.6%) HH heads were government and NGO employed respectively. Regarding the main source of food, all HHs got their food from the market.

**Table 3: Socio demographic characteristics of study participants Addis Ababa, February, 2012 (n=550)**

<b>Variables</b>	<b>Frequency (n=550)</b>	<b>Percent</b>
<b>Sub-city</b>		
Addis Ketema	240	43.6
Bole	162	29.5
NSL	148	26.9
<b>Sex of HH head</b>		
Male	332	60.4
Female	218	39.6
<b>Age of HH head*</b>		
18-24	17	3.1
25-44	259	47.1
45-64	195	35.5
65+	79	14.4
<b>Religion</b>		
Orthodox	418	76.0
Muslim	100	18.2
Protestant	28	5.1
Catholic	2	0.4
Jehovah witness	2	0.4
<b>Family size</b>		
1-4	228	41.5
5-8	276	50.2
9	46	8.3
<b>Education of HH head</b>		
Uneducated	146	26.5
Primary school	176	32.0
Secondary school	127	23.1
Diploma & above	101	18.4
<b>Occupation of HH head</b>		
Unemployed**	114	20.7
Merchant	48	8.7
Government employed	91	16.5
NGO employed	86	15.6
Self employed	94	17.1
Daily wage	52	9.5
Pension	65	11.8

\*- UN-lowest age classification for household earning and employment activities

\*\*- includes those who get remittance as source of income

Table 4 below shows the socio- economic characteristics of the respondents. From all HHs only 134 (24.4%) HHs have their own private house, whereas 217 (39.5%) and 147 (26.7%) were living in Kebele and private rental houses respectively. Even though we couldn't get complete response, HHs were asked about their average monthly income and consumption expenditure. The mean value for the reported monthly HH income was 1477.8 Ethiopian birr while the median was 1000 birr with minimum and maximum income of 100 & 10, 000 birr respectively. The mean monthly per capita income for this sample was around 342 birr that is 0.65 US dollar per day.

Data on monthly consumption expenditure were collected from 471 (response rate =89 %) participants and the monthly average expenditure of HHs was found to be 1623 birr. Food takes the largest share of most HHs' consumption expenditure ranging to 95% among pensioner headed HHs. The mean share of food expenditure was found to be 53.9%. Out of the 471 HHs, 305 (64.7%) HHs spent greater than 50% of their consumption expenditure for food which is an indication of vulnerability for food insecurity.

Households were also asked about their asset possession. Electronic materials like television or tape (94%), and bed and/or chair (88.7%) are the most commonly owned HH assets while transport modalities like car (by 8.4%) and cycle or bicycles (by 0.7%) are the least owned assets. According to mean score of HH assets (mean=3.75 assets), 146 (26.5%) of HHs were asset poor while 197 (35.8 %) and 207 (37.6 %) were classified as asset medium and asset rich HHs respectively.

**Table 4: Socio economic profile of study participants, Addis Ababa, February, 2012**

<b>Variables</b>	<b>Frequency (n=550)</b>	<b>Percent</b>
<b>Housing ownership</b>		
Private	134	24.4
Kebele	217	39.5
Private rent	147	26.7
Gift*	32	5.8
Government rental Housing	20	3.6
<b>Average monthly income (n=430)</b>		
<600 Birr	114	26.5
600-2000 Birr	235	54.7
>2000 Birr	81	18.8
<b>Total monthly consumption expenditure (n=472)</b>		
<900	121	25.6
900-2000	261	55.3
>2000	89	19.1
<b>Food share of expenditure (n=471)</b>		
<50%	166	35.2
50-75%	228	48.4
>75%	77	16.3
<b>Asset possession</b>		
Asset poor (<=2)	146	26.5
Asset medium (3-4)	197	35.8
Asset rich (>=5)	207	37.6
<b>Any asset sold</b>		
Yes	26	4.7
No	524	95.3

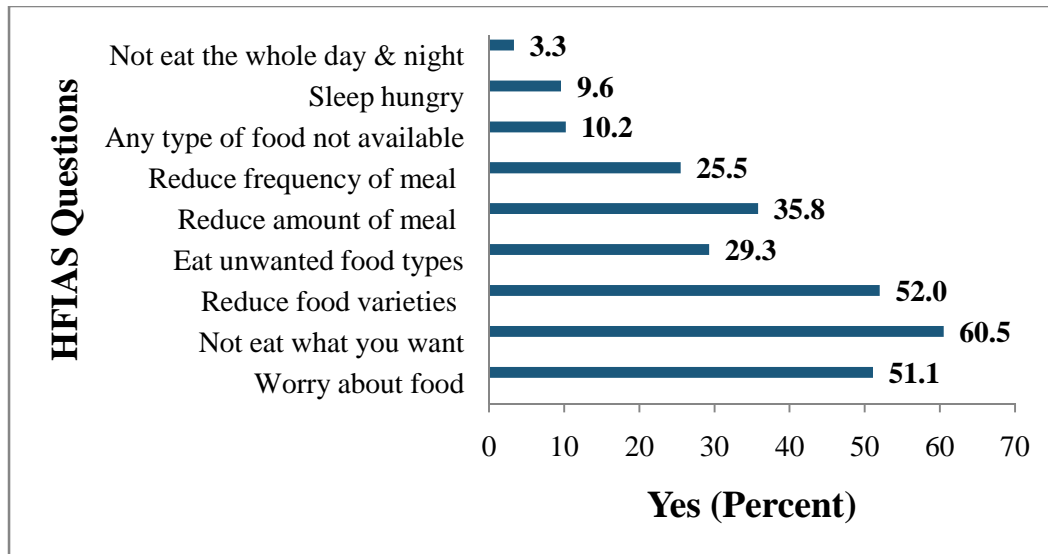
\*\*\*- Gift houses are those given from relatives, NGOs and government for peoples' shelter.

## 5.2. Food security status of households

Based on the response to the nine HFIAS questions and their frequency of occurrence over the past 30 days, HHs were assigned a score that ranges from 0 to 27. A higher HFIAS is indicative of poorer access to food and greater HHs food insecurity. Accordingly, the mean score of HHs was 5.4 with minimum and maximum value of 0 and 24 respectively. One hundred twenty nine (23.5%) HHs have a score of zero that is they never experienced any anxiety, or didn't alter the quality and quantity of their diet.

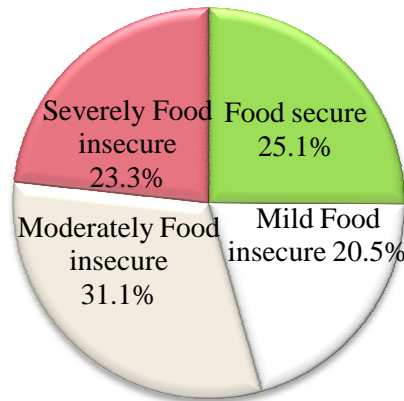
On the other hand, 53 (9.6%) respondents have ever experienced sleeping hungry, skipping their dinner, and 18 (3.3%) participants didn't eat the whole day due to lack of food in their home or unable to buy from the market. Around 286 (52%) HHs have reduced their food varieties, 333 (60.5%) feel they don't eat what they want, 197 (35.8%) have reduced amount of meal, and 140 (25.5%) have reduced their meal frequency.

**Figure 3: Household Response to HFIAS questions, Addis Ababa, February, 2012 (n=550)**



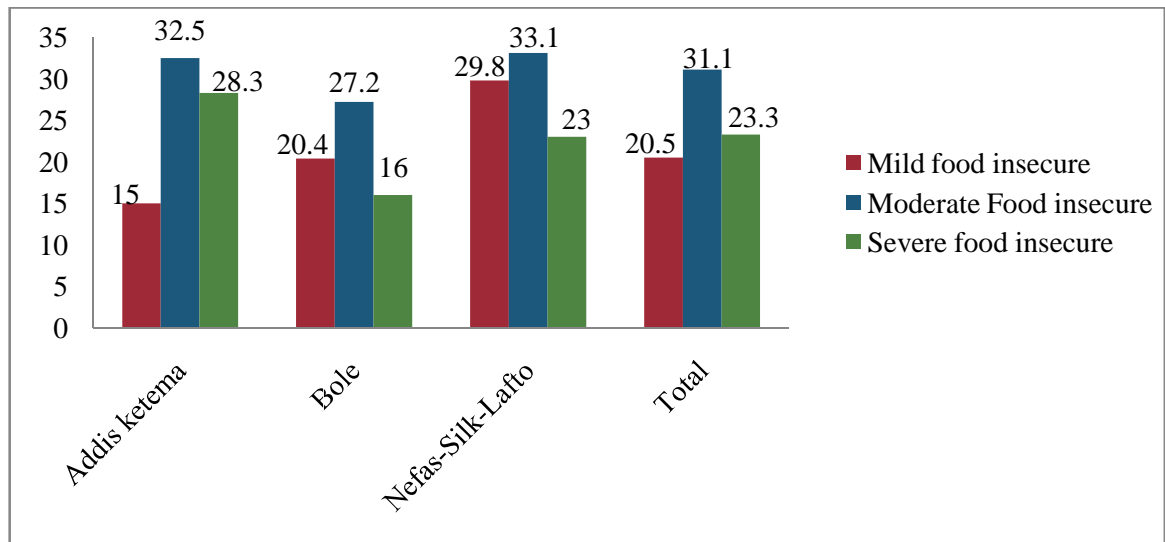
Based on their responses to the occurrence and frequency questions, HHs were classified into four categories of food security. As shown in figure 4, of the total 550 households, 412 were food insecure (FI) making overall magnitude of HFI 74.9 percent. About 128 (23.3%) HHs were severely FI while 113(20.5%) and 171(31.1%) HHs were mild and moderately FI respectively.

**Figure 4: Diagrammatic representation of Food security status in Addis Ababa, February, 2012 (n=550).**



As indicated in figure 5 below Over all food insecurity is high in Nefas-Silk-Lafto sub-city (85.8%) taking 30.8 % of the total food insecure HHs in the sample. On the other hand, severe FI is highly prevalent (28.3%) in Addis-Ketema sub-city compared to other sub-cities.

**Figure 5: Magnitude of Household food insecurity by sub-city, Addis Ababa, February 2012**



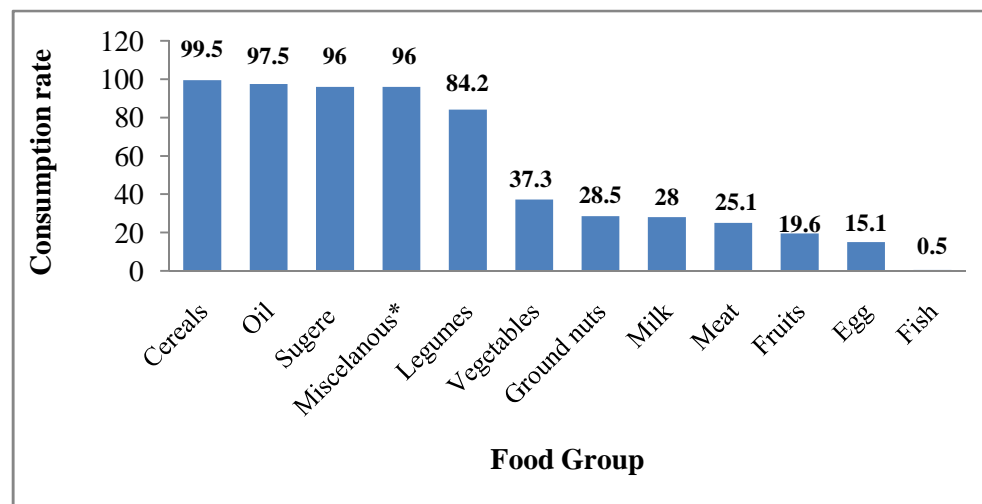
### Household food security using Dietary diversity score

The mean Dietary Diversity score of HHs was  $6.3 \pm 0.07$  with minimum and maximum score of 1 and 11 food groups respectively. Using this mean score HHs were categorized in to three groups

taking the population in the third tertiles as target (reference) group (43). Accordingly, 224 (40.7%) of HHs has consumed 5 or less food groups (poor dietary diversity) while 216 (39.3 %) have consumed 7 or more food groups (high dietary diversity).

As shown in figure 6, Cereals (99.5%), sugar (96.0%), and miscellaneous foods like tea and coffee (96%) were most commonly consumed food groups. On the other hand fish (0.5%), egg (15.0%) and fruits (19.6%) were the least consumed food groups.

**Figure 6: Households’ Consumption rate of different food groups, Addis Ababa, February 2012 (n=550).**



*\*Miscellaneous refers to any condiment foods like tea, coffee or anything that is used to flavour food.*

### **Qualitative Findings of Household Food Security status**

The qualitative study was conducted in Arada (one FGD), and Gulele sub cities (two FGDs) including a total of 31 (12 male and 19 females) participants. From all participants, 5 were workers from the consumers’ union, 4 from retailers that visit the union to buy food items, 13 were government employees of different sectors, and the rest 9 were unemployed and pensioners selected directly from the community. Only 2 and 4 participants have attained degree and diploma programs respectively, while the rest were with primary and secondary school or uneducated.

Participants of FGDs were asked to explain how they understand HFS in their community. Participants perceived food security as consumption of different varieties of food at least three times a day. But some participants explained HFS as a complete access to food, safe drinking water and housing. Regarding with the feeding situation of FGD participants, majority of participants reported

that most HHs eat only one type of food per day either bread (“dabbo”) or Injera with sauce made of peas or beans, which was considered as indicator of food insecurity.

Majority of participants explained the current food security problem in severe conditions and agreed that there is no food security in their family and their community. One of the participants from Arada sub-city reported that:

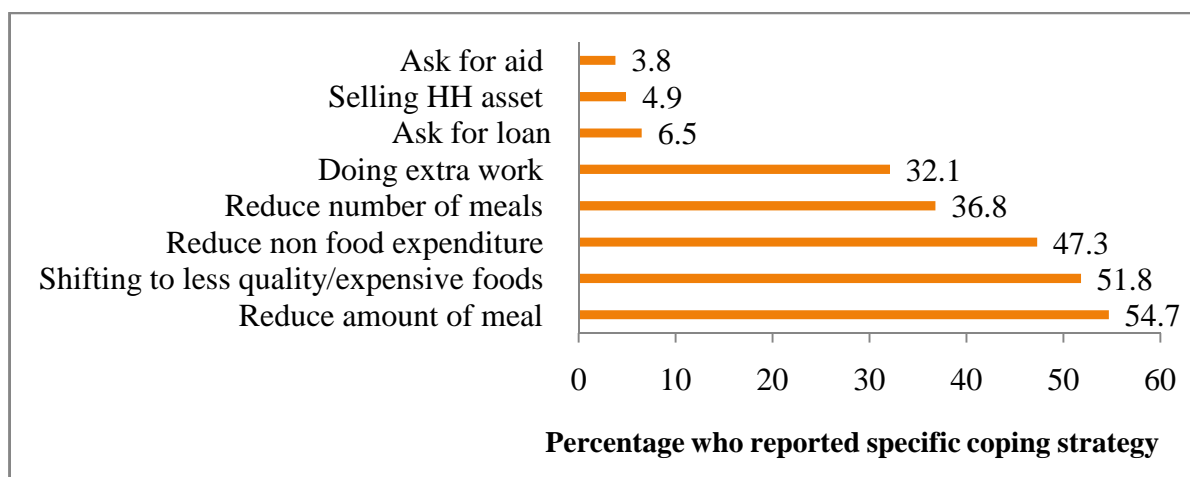
*“It is a problem even to speak about it, let me tell you about myself: I used to lead a better life before the inflation occurs, but with the current high food price and high housing rent, things have changed. My families usually eat bread. One day, when I arrived home at the evening my child didn't sleep, waiting for the bread. But I forgot to buy the bread, because I drank alcohol to cope with my hunger pain and stress. That was embarrassing. Within few days my house rent has increased which I couldn't afford. For that reason I was forced to leave Addis Ababa. Even there, I couldn't get better opportunity to fulfill my families' need which finally forced me to be divorced and live alone. So, we need urgent solution”* (A 40 years old, government employed male HH head).

### **5.3. Perceived Reasons for Food insecurity and Households' coping strategies**

Participants of the study were asked whether they believe their family members are feeding the type and amount of food they want, and 393 (71.5%) HHs reported that their families were not feeding as needed. Shortage of food due to high food price (65%), and reduction in HH income (32.7%) were the main reasons for poor feeding. Few HHs have mentioned other reasons for low food consumption such as lack of time to prepare (4.9%), and due to loss of appetite (2.5%). This result indicated that high food price is the main reason for low food consumption of families.

Coping strategies of HHs, for changes in food price and food security, ranges from reducing the amount of meal (54.7%), and shifting to less quality/expensive foods (51.8%) to skipping meals (36.8%) and reducing non food expenditure (47.3). Engaging in additional work (32.1%) and selling HH assets (4.9%) were also other mentioned HH coping strategies. Moreover, 3.8% and 6.5% HHs have reported to ask aid and loan respectively to cope with the food insecurity they faced.

**Figure 7: Household coping strategies of high food price and food insecurity, Addis Ababa, February, 2012 (n=550)**



### **Qualitative findings of reasons for food insecurity and HH coping strategies**

According to FGD participants, the main reason for food insecurity is low purchasing power of HHs due to high food and nonfood commodity prices. Other reported reasons include, demand and supply disparity due to massive rural- urban migration, unstable food market and poor working habit especially among the youth. Some participants claimed that, there is enough crop production, but both traders and the government are responsible for such unstable food market and food deficiency. A 36 years old woman, who is head of consumers’ work union in one district, explained that:

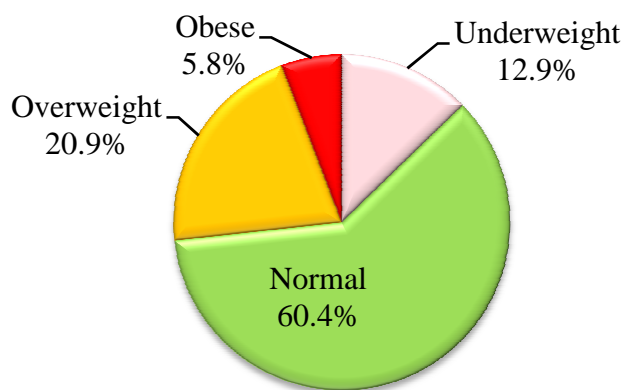
*“we do have enough food production in our country; the whole problem is with our government, we are given black wheat at subsidized price, but our white wheat and teff are being exported, we are given muddy oil with high cholesterol, but our pure (ecological) oil seeds are being exported. Now people, especially the elder one, are becoming hopeless due to loss of their ecological foods. So everything is with the government”.*

With regard to coping strategies, FGD participants reported that: with the will of God, it is possible to live with what we have, whether we feel bad or good, by allocating the resource we have (*‘Mabkakat’*). They also said that, it is by prioritizing that they can lead their home; first they reduced or totally avoid non food expenditures, reduce the varieties and qualities of food, and finally they skip their meals leaving for their children. Walking on foot to save money, skipping at least one regular meal per day and shifting to less expensive food items are commonly mentioned coping strategies from all group discussants.

## 5.4. Women’s nutritional status

In this study, we assessed nutritional status of women using height and weight measurements and by computing Body Mass Index (BMI). Accordingly, the mean value of height and weight were 1.56cm and 55.8Kg respectively, while the mean and median values of BMI were  $22.9 \pm 0.17$  and 22.2 Kg/m<sup>2</sup>, respectively. The minimum and maximum BMI were 14.4 Kg/m<sup>2</sup> and 38.3 Kg/m<sup>2</sup> respectively. About 12.9% of women were underweight, 20.9% are overweight and 5.8% are obese. The minimum and maximum heights recorded were 1.37 and 1.70 meter respectively. Based on the cutoff point of 145 cm, 4.2% of women are stunted.

**Figure 8: Classification of Women’s Nutritional status using BMI, Addis Ababa, February 2012 (number are given in percentage (n=550))**



### Qualitative finding of food price trends and its effect on household food insecurity

Focus group discussants explained the rise in food price as the most shocking socio-economic event in their life. Participants described change in food price comparing across time by mentioning price of some common food types. They also mentioned this increase in food price as the main cause of food insecurity and their poverty. One participant from Arada sub-city said that:

*“The current food price is alarming, previously we used to buy a cabbage with one birr but currently it is 4-5 birr, we used to buy 1 Kg of pea or bean with 10 birr which currently has the price of meat. Leave alone milk and meat, we couldn’t think to buy peas and lentils. Currently, even it is not easy/accessible to buy left over foods from hotels. Although the government is distributing wheat and oil, the community is not happy complaining for its quality and poor distribution. Another daily laborer participant from Arad sub-city also explained this as follow:*

*“Previously we used to buy sugar with one birr but now we couldn't get below 15 birr and we couldn't get less than 3 liter of edible oil. All this are no affordable and people are between survival and death. My friend was a daily laborer but now he sustained physical injury and he couldn't make any income. He is feeding his family buying and drying ‘Bule’ (Amharic saying to mean left over foods from hotels and restaurants) for which he has to be registered and wait for long time to get it.*

Another 20 years old young participant from Arada sub-city reported that:

*“Previously, my mother used to give me ‘Engocha’ (hot enjera drenched with butter) but now leave alone the butter; I couldn't eat enjera due to high food price”.*

Concerning vulnerability of HH members towards high food price, most participants agreed that mother and children were primary affected. However, some participants said that, husbands were affected psychologically more than everyone else because of the responsibility they have. One participant has explained this in relation to the severity of HFI by saying:

*“In the absence of actual food insecurity but fear of that due to high food price, the husband is more affected suffering from anxiety. But if there is actual shortage of food in the HH, the mother and her child were more affected by physical hunger and malnutrition because the mother will cut the size or skip over her meal giving priority to her husband and her child. Children manifest malnutrition at early time than their parents because they are not aware of their food deficiency”.*

Participants were also asked about the role of government subsidization on common food items. All but one of the participants were using these subsidized oil and wheat as their main source of food and they witnessed its paramount contribution in stabilization of the market and their own food security. Participants complained about the poor quality of foods particularly of the oil, illegal utilization of subsidized foods by traders by storing for long period of time and selling to other areas, and non affordable packing system of the foods. For example, one solid waste collector woman from Gulele sub-city mentioned that:

*“since the government started distribution of foods in the kebele, I have never bought any oil or wheat because my salary didn't allow me to buy more than a litter of oil or 5 kg of wheat; I don't have anything to sell for buying food; I am sleeping just on the soil in my home using only one plastic, there is no one to help me, so the government should take urgent action to help people like me”.*

## **5.5. Determinants of Household food security status**

### **Bivariate analysis**

As shown in table 5, HFS status shows significant variation across the three sub-cities. Households from Bole are less FI than other sub-cities (OR=0.56, 95% CI= 0.36-0.86) while the risk of FI was 1.93 times higher in Nefas-Silk-Lafto than in Addis Ketema sub-city (OR=1.93, 95% CI=1.1-3.3). Magnitude of HFI was higher (84.8%) among HHs with 9 or more family size comparing to those with family size of 4 or less (OR=1.86, 95% CI= 0.79-4.38). Proportion of HFI was higher (81%) among HHs headed by older age (65<sup>+</sup>) than those headed by the young (24 years or less) (70.6%). However, using the binary logistic regression, sex and age of HH head, and family size have no significant association with food security status (p value = 0.8, 0.3 and 0.4 respectively).

The odds of HFI reduced with increasing educational level of HH heads. Households headed by those uneducated, and with primary education were more FI than those headed with diploma and above (OR=2.75, 95% CI=1.6-4.84, and OR=2.5, 95% CI=1.56-4.57) respectively. Magnitude of FI ranges from 56.2% among HHs headed by the merchant to 90% among those headed with daily wages. The odds of HFI was lower among HHs headed by merchants compared with HHs headed by unemployed heads (OR=0.48, 95% CI=0.24-0.97), and pensioners (OR=0.3, 95%CI=0.13-0.68). On the other hand, HHs headed by the daily laborers were 3.5 times more FI than those headed by unemployed heads (95% CI=1.3-9.64).

Housing and asset ownership were other factors associated with food security status of HHs. Those HHs who live in Kebele rental house were 1.8 times more likely to be FI than those who have their own private house (95% CI=1.09-2.93) while those who live in government rental houses were 0.3 times (95% CI=2.03-14.3) less FI than those who live in their private house. The odds of HFI was higher among asset poor HHs (OR=2.8, 95% CI=1.64-4.67) compared to those asset rich HHs while those asset medium HHs were twice FI as compared to the asset rich HHs (95% CI=1.33-3.24). The poorest HHs were more likely to be FI than those richest HHs (OR=6.8, 95% CI=3.4-13.57).

**Table 5: Correlates of household food security status Addis Ababa, February 2012**

Variables	Food secured [frequency (%)]		OR (95% CI)
	Yes	No	
<b>Sub-city</b>			
Addis Ketema	58 (24.2)	182 (75.8)	1.00
Bole	59 (36.4)	103 (63.6)	0.56 (0.36-0.86)
N-S-Lafto	21 (14.2)	127 (85.8)	1.93 (1.11-3.33)*
<b>Sex of HH head</b>			
Male	82 (24.7)	250 (75.3)	1.00
Female	56 (25.7)	162 (74.3)	0.949 (0.64 - 1.41)
<b>Age of HH head</b>			
18-24	5 (29.4)	12 (70.6)	1.00
25-44	64 (24.7)	195 (75.3)	1.27 (0.43-3.74)
45-64	54 (27.7)	141 (72.3)	1.1 (0.37-3.23)
65 <sup>+</sup>	15 (19)	64 (81.0)	1.78 (0.5-5.82)
<b>Education of HH head</b>			
Uneducated	30 (20.5)	116 (79.5)	2.75 (1.57-4.8)*
1 <sup>o</sup> School	37 (21.0)	139 (79)	2.67 (1.56-4.57)*
2 <sup>o</sup> School	29 (22.8)	98 (77.2)	2.41 (1.36-4.27)*
Diploma/ above	42 (41.6)	59(58.4)	1.00
<b>Occupation of HH head</b>			
Un employed <sup>a</sup>	31 (27.2)	83 (72.8)	1.00
Merchant	21(43.8)	27 (56.2)	0.48 (0.24-0.97)*
Government Employed	22 (24.2)	69 (75.8)	1.17 (0.62-2. 21)
NGO Employed	24 (27.9)	62 (72.1)	0.97 (0.52-1.81)
Self Employed	23 (24.5)	71 (75.5)	1.15 (0.62-2.16)
Daily wage	5 (9.6)	47 (90.4)	3.5 (1.3-9.64)*
Pension	12 (18.5)	53 (81.5)	1.65 (0.78-3.5)
<b>Family size</b>			
1-4	57 (25.0)	171 (75.0)	1.00
5-8	74 (26.8)	202 (73.2)	0.91 (0.61-1.36)
9 <sup>+</sup>	7 (15.2)	39 (84.8)	1.86 (0.79-4.38)
<b>Housing ownership</b>			
Private	41 (30.6)	93 (69.4)	1.00
Kebele rent	43 (19.8)	174 (80.2)	1.78 (1.1-2.9)*
Private rent	32 (21.8)	115 (78.2)	1.58 (0.93-2.71)
Gift <sup>b</sup>	10 (31.2)	22 (68.8)	0.97(0.42-2.23)
Government RH <sup>c</sup>	12 (60.0)	8 (40)	0.29 (0.11-0.78)*
<b>Av. Monthly Income (n=430)</b>			
1 <sup>st</sup> terciles	15 (13.2)	99 (86.8)	6.8 (3.4-13.6)*
2 <sup>nd</sup> terciles	52 (22.1)	183 (77.9)	3.61(2.12-6.15)*
3 <sup>rd</sup> terciles	41 (5.6)	40 (49.4)	1.00
<b>Asset possession</b>			
Asset poor	24 (16.4)	122 (83.6)	2.77 (1.64-4.67)*
Asset medium	41 (20.8)	156 (79.2)	2.07 (1.33-3.24)*
Asset rich	73 (35.3)	134 (64.7)	1.00

\*- Significant at  $p$  value  $<0.05$

a- Includes those who get remittance as source of income

b- gift implies those households living in a house given by relatives, charities or government c- RH= government rental house

## 5.7. Relationship between household food access, dietary diversity and women’s nutritional status

In this study we assessed the relationship among women’s nutritional status, HFS status, and HDDS using binary logistic and cross tabulations

As shown in table 6 below, there is no significant association between women’s nutritional status and HHs’ food access. On the other hand, magnitude of underweight was higher among women in the lower dietary diversity (16.5.3%) compared to those in the higher diversity score (10.2%). Women with higher dietary diversity were two times overweight than those in the lower diversity score (COR=2.1, 95%CI=1.4-3.3) and those in the medium diversity score were also more likely to be overweight than in the lower dietary diversity score (COR=1.9, 95%CI=1.1-3.1).

**Table 6: Binary regression analysis of women’s nutritional status with household Food security status and HDDS, Addis Ababa, February 2012**

Variables	Underweight [Frequency (%)]		COR (95% CI)	Overweight [Frequency (%)]		COR (95% CI)
	Yes	No		Yes	No	
<b>HFS status</b>						
Food secure	19 (13.8)	119 (86.2)	1.00	37 (26.8)	101 (73.2)	1.00
Food Insecure	51 (12.4)	361(87.6)	0.9 (0.5-1.6)	110 (26.7)	302 (73.3)	0.99 (0.6-1.5)
<b>HDDS</b>						
Low DDS	37 (16.5)	187 (83.5)	1.00	42 (18.8)	182 (81.2)	1.00
Medium DDS	11 (10.0)	99 (90)	0.6 (0.3-1.1)	34 (30.9)	76 (69.1)	1.9 (1.1-3.1)*
High DDS	22 (10.2)	194 (89.8)	0.6 (0.3-1.0)	71 (32.9)	145 (67.1)	2.1 (1.4-3.3)*

HFS=Household food security, COR= Crude Odds Ratio, FI=Food Insecured, DDS=Dietary Diversity Score,

\*= Significance at  $p$  value<0.05

More than 80% of food secured HHs and only 34% of severely FI HHs have consumed 6 or more food groups in the last 24 hours. Generally, HHs with better access to food ate more diversified foods and HDDS is negatively correlated with HFIAS ( $r=-0.52$ ,  $p$  value =0.001). Additionally, from the binary regression analysis, for a unit increment in HDDS, the odds of FI reduces by 55% (OR=0.55,  $p$  value=0.001). Regarding women’s nutritional status, mothers BMI increased with increasing HDDS. There is also weak but significant positive correlation between women’s BMI and HDDS ( $r=0.1$ ,  $p=0.02$ ).

Table 7 shows the consumption of specific food groups across each category of food security and women’s nutritional status. Consumption rate of cereals, the staple foods of most Ethiopians, didn’t vary with HFS status or women’s nutritional status. However, consumption of other foods such as fruits and vegetables, and all animal products increases with increasing HFS status and women’s

BMI. Consumption of fruits and vegetables, and all animal products increases with increasing HFS status and women's BMI.

As shown in table 7, 42%, 44.9%, 27.5%, and 54.3% of food secured HHs consumed fruits, meat, egg and milk respectively compared to only 6.2%, 10.2%, 4.7% and 10.2% of severe FI HHs. Similarly, 22.6%, 29.6%, 18.3% and 33.9% of overweight women have consumed fruits, meat, egg and milk compared to only 15.7%, 21.4%, 10 % and 20% of underweight women respectively. HHs in the severe FI category were 0.092, 0.14, & 0.095, times less likely to consume fruits, meat and milk respectively (p=0.001). Overweight Women were 2.05 and 2.5 times more likely to consume milk and vegetables than underweight women (p=0.045 and 0.004 respectively).

**Table 7: Consumption rate of specific food groups according to household food security and women's nutritional status, Addis Ababa, February 2012**

<b>HH food security and Nutritional status</b>	<b>Percentage of HHs consuming selected food groups</b>								
<b>HH Food Access</b>	<b>Cereals</b>	<b>Vegetables</b>	<b>Fruits</b>	<b>G. nut</b>	<b>Meat</b>	<b>Egg</b>	<b>Milk</b>	<b>Oil</b>	<b>Sugar</b>
Food secure	98.6	55.1	42.0	50.0	44.9	27.5	54.3	100	99.3
Mild FI	100.0	38.1	19.5	26.5	27.4	18.6	28.3	100	98.2
Moderate FI	100.0	31.6	11.7	21.1	18.7	10.5	19.9	98.2	97.7
Severe FI	99.2	25.0	6.2	17.2	10.2	4.7	10.2	91.4	88.3
<b>Women's BMI</b>									
Underweight	100.0	27.1	15.7	21.4	21.4	10.0	20.0	98.6	91.4
Normal	99.1	35.4	20.1	29.1	24.0	15.0	27.9	97.3	96.1
Overweight	100.0	48.7	22.6	31.3	29.6	18.3	33.9	96.5	98.3
Obese	100.0	37.5	12.5	28.1	28.1	15.6	25.0	100.0	96.9

*G.nut= Ground nuts: includes like potato, sweet potato, carrot, etc.*

### **Multivariate analysis**

To identify independent predictors of HFS, multiple binary logistic regression was applied and variables with p value of less than 0.3 in the binary regression were included. Accordingly, living in Nefas-Silk-Lafto sub-city (AOR=1.9, 95% CI=1.03-3.4) and having lower monthly income (AOR=3.8, 95%CI=1.5-9.7) were found to be independently associated with condition of being FI. In addition, HH headship with uneducated (AOR=3.3, 95% CI=1.6-6.8) with daily laborer (AOR=2.96, 95%CI=1.1-8.3), and government employed (AOR=2.3, 95%CI=1.1-4.9) were also found to be significantly associated with higher FI.

On the other hand those HHs lived in the government rental houses were less likely to be FI compared to other residential houses (AOR=0.34, 95%CI=0.1-0.95). Sex and age of HH head and family size didn't have significant association with HFS status.

**Table 8: Multivariate regression analysis for selected household characteristics and wealth status of households, Addis Ababa 2012**

Variables (n=550)	Food security status [Frequency (%)]		COR (95% CI)	AOR (95% CI)
	F. secure	F. insecure		
<b>Sub-city</b>				
Addis-Ketema	58 (24.2)	182 (75.8)	1.00	1.00
Bole	59 (36.4)	103 (63.6)	0.56 (0.36-0.86)	0.64 (0.4-1.01)
N-S-Lafto	21 (14.2)	127 (85.8)	1.93 (1.11-3.33)	1.8 (1.02-3.3)*
<b>Education of HH head</b>				
Uneducated	30 (20.5)	116 (79.5)	2.75 (1.57-4.8)	3.4 (1.7-6.7)*
1 <sup>o</sup> School	37 (21.0)	139 (79)	2.67 (1.56-4.57)	2.8 (1.5-5.4)*
2 <sup>o</sup> School	29 (22.8)	98 (77.2)	2.41 (1.36-4.27)	2.2 (1.1-4.1)*
Diploma/ above	42 (41.6)	59(58.4)	1.00	1.00
<b>Occupation of HH head</b>				
Unemployed <sup>a</sup>	31 (27.2)	83 (72.8)	1.00	1.00
Merchant	21(43.8)	27 (56.2)	0.48 (0.24-0.97)	0.5 (0.3-1.1)
Government Employed	22 (24.2)	69 (75.8)	1.17 (0.62-2. 21)	2.3 (1.1-4.9)*
NGO Employed	24 (27.9)	62 (72.1)	0.97 (0.52-1.81)	1.3 (0.6-2.6)
Self Employed	23 (24.5)	71 (75.5)	1.15 (0.62-2.16)	1.4 (0.7-2.6)
Daily wage	5 (9.6)	47 (90.4)	3.5 (1.3-9.64)	2.96 (1.1-8.3)*
Pension	12 (18.5)	53 (81.5)	1.65 (0.78-3.5)	1.8 (0.9-4.0)
<b>Housing ownership</b>				
Private	41 (30.6)	93 (69.4)	1.00	1.00
Kebele rent	43 (19.8)	174 (80.2)	1.78 (1.1-2.9)	1.2 (0.7-2.1)
Private rent	32 (21.8)	115 (78.2)	1.58 (0.93-2.71)	1.3 (0.72-2.5)
Gift <sup>b</sup>	10 (31.2)	22 (68.8)	0.97 (0.42-2.23)	0.99 (0.4-2.41)
Government RH <sup>c</sup>	12 (60.0)	8 (40)	0.29 (0.11-0.78)	0.34 (0.1-0.95)*
<b>Asset possession</b>				
Asset poor	27 (12.1)	197 (87.9)	5.4 (3.34-8.79)	1.4 (0.7-2.5)
Asset medium	19 (17.3)	91 (82.7)	3.55 (2.02-6.24)	1.3 (0.8-2.1)
Asset rich	92 (42.6)	124 (57.4)	1.00	1.00
<b>Average monthly income<sup>d</sup></b>				
1 <sup>st</sup> terciles	15 (13.2)	99 (86.8)	6.8 (3.4-13.6)	3.8 (1.5-9.7)*
2 <sup>nd</sup> terciles	52 (22.1)	183 (77.9)	3.61(2.12-6.15)	2.4 (1.2-4.9)*
3 <sup>rd</sup> terciles	41 (5.6)	40 (49.4)	1.00	1.00

\*- significant association at  $p < 0.05$  when adjusted for other variables;

a- Includes those who get remittance as source of income;

b- households given by relatives, charities or government;

c- RH= rental house;

d- Analysis is done for 430 HHs because of in complete data on income.

## 6. DISCUSSION

The present study reports on food security, nutritional status and their determinants among HHs belonging to various socio-economic strata in Addis Ababa. About 39.6% of HHs in the study were female headed and large proportion of HH heads were unemployed. The average per capita income for the study population was 0.65 US dollar per day, and around 88% of the study populations live below the international poverty line of 1.25 US dollar per day. Food takes the largest share of most HHs' consumption expenditure ranging up to 95% among HHs headed by pensioners. Majority (64.7%) of HHs have high share of food expenditure (mean=54%) indicating their vulnerability to food insecurity.

The study revealed that around 75 % of HHs were FI where 23% belonging to severe FI. The overall magnitude of FI was much higher than that of national food insecurity (35%) reported by the Ethiopian Health and Nutrition Research Institute in 2010 (25). One possible explanation for this could be the fact that there has been high food inflation in the past 2 years (36) which might have negatively affected food security situation of urban HHs. Unlike the national survey, our study was specific to the urban Addis Ababa and this will have two possible implications. First, market dependent HH food supply and absence of safety net programs in the city can make urban HHs especially vulnerable to high food price than their rural counterparts. Second the first 6 HFIAS questions were considered to be culturally sensitive which may result in response variations between urban and rural areas.

The magnitude of FI in this study is lower than a report from slum urban areas of Bangladesh where 90% and 61.8% of HHs were FI and severely FI respectively (26). This difference may be because the study in Bangladesh was focused on marginalized HHs in slum areas. On the other hand, the magnitude of FI in our study is comparable with reports from studies conducted in Addis Ababa (27), urban South Africa (17) and West Africa (28).

In order to triangulate the HH access score, HHs were asked about their feeding practice and 71.5% of them believe that their families were not feeding as needed and they are not food secure. This assures that more than 70% of HHs were generally FI. Furthermore, the qualitative findings suggested high and severe level of HFI in Addis Ababa.

The mean HDDS of 6.3 food groups in this study is similar with results from local studies done in Dire-Dawa (29) and Addis Ababa (27), but higher than the figure from Mozambique (30).

Reducing the amount/size of meal and shifting to less quality/expensive foods were commonly reported HH coping strategies of FI and high food price. This finding is similar with coping strategies found in Bangladesh (20) and study done by WFP in Addis Ababa (24).

The mean BMI of women for this study was 22.9 with 12.7% and 20.9% of women are underweight, and overweight respectively. Some of these findings are similar with the findings of DHS 2011 for Addis Ababa (mean=22.2, underweight =14.4%) (36). However, the proportions of overweight and obesity are slightly higher than the DHS findings (overweight = 15.8, Obese= 4%). This indicates the presence of both under and over nutrition and increment of these conditions through time. Proportion of women below 145cm is also higher (4.2%) than the DHS finding (2.7%) (36). Short stature (below 145 cm) reflects previous poor socioeconomic conditions and inadequate nutrition during childhood and adolescence.

Nutritional status of women was significantly associated with dietary diversity of HHs but not with HH food access. The absence of relationship between Women's BMI and HH food access can be explained by the fact that data on food security status by access was collected only for four weeks period and variation in the availability of food in the HHs may not determine nutritional status of women within such narrow period. Additionally, HH food accessibility may not always reflect food utilization by HH members because food utilization is associated with other factors like access to safe water and sanitation. Beside this, the small number in the different group of nutritional status might be a reason for this lack of association.

Multiple regression analysis revealed that, education and occupational status of HH heads and HH monthly income were significantly associated with HFS status. Households headed by those uneducated were found to be more FI than those HHs headed with diploma and above. Similar findings were found from studies in Addis Ababa (31) Bangladesh (32) and Nigeria (33). This finding was expected as the more educated HH heads will have better opportunity of employment and salary. Households in the first and second tertiles of income were 3.8 and 2.4 times more FI than those in the third tertiles respectively. This finding was compatible with findings from Addis Ababa (27, 31) and Nigeria (33). Sex and age of HH head didn't have significant association with HFS status. Other studies conducted in Addis Ababa (31) and Bangladesh (26, 32) reported the same finding showing no significant variation of HFS between male and female headed HHs.

Another important finding in this study is that there is significant relationship between HDDS and HFS status. This finding is similar to studies made in Addis Ababa (27), Mozambique (30), and West Africa (28). This statistical relationship signifies the capacity of both methods to measure HFS status separately or in combination. The qualitative study also revealed the presence of severe FI mainly caused by high food price, unemployment and poor working habit of the youth group, and increased cost of other non-food items.

## **7. STRENGTH AND LIMITATION OF THE STUDY**

### **Strength**

This study provides timely required information for researchers and policy makers particularly those focused on food security areas. As we applied probability sampling method representing sub-cities with different levels of social development using both qualitative and quantitative methods, this research provided scientifically sound and valid results. In addition, this study has applied different proxy indicators of food security which allowed validation of HFS by different methods and comparisons across food access, dietary diversity and individual nutritional status.

### **Limitation**

Despite the above strengths, the study has some limitations related to the food access measurement tool (HFIAS). The HFIAS questions are considered to be culturally sensitive and liable to social desirability bias and some HHs may associate the questions with screening for aid and can provide exaggerated response. However, since detail description of the purpose of the research was given before interview, and triangulated with focus group discussions, it is thought to have little or no effect on the overall result.

## 8. CONCLUSIONS

The present study found that approximately three fourth of households in Addis Ababa are food insecure with approximately one in four households suffered from severe form of food insecurity which goes to the extent of hunger. This figure is very high reflecting the burden of high food price in the city. Commonly reported coping strategies of high food price such as reducing meal frequency and size, and shifting to less quality foods are also indications of food insecurity.

Household dietary diversity is significantly associated with households' access to food and there is poor consumption of fruits, vegetables and animal products among food insecure households which may put household members at higher risk of malnutrition. Both the quantitative and qualitative findings revealed that, high food price was the main reason for food insecurity. Other factors that affect household food security status include reduction or loss of household income, high rural-urban migration, increased household rents and unemployment especially among the youth. Educational and occupational status of households heads and households monthly income, were found to be independent determinant of households food security.

Significant numbers of women in the reproductive age group are overweight or obese while the problem of underweight was also substantial. Higher households' dietary diversity was associated with higher likelihood of overweight among women in the reproductive age group.

Some members of communities believed that food items subsidized by the government have no quality and are unaffordable by the poor.

## **9. RECOMMENDATIONS**

Based on the qualitative and quantitative findings, the following short term and long term actions are recommended for policy makers, the community and researchers.

### **At policy and program level**

- Since food insecurity and hunger are very common especially among the low income urban households, it is time to design and implement short term interventions for protecting those food insecure households from malnutrition. To this end:
  - Subsidization of common food commodities should be further strengthened to improve access to the poor.
  - The quality of subsidized food items like oil and wheat should be assured to the extent that the community could value them and they should be distributed in smaller amounts (like 1-3 liter of oil) to make affordable by the poor.
  - Beside subsidization of few food items, especial aid programs should be designed to support urban households with severe food insecurity.
- As a long term solutions the following points should be taken into consideration:
  - Stability of food price by improving productivity and ensuring more equitable distribution of resources.
  - Awareness creation about productivity, supplemented with initiatives aimed at job creating opportunities, should be pursued especially among the youth group in the city.
  - Emphasis should be given to the problems of daily wagers and government employees
  - Beside the actions taken on universal education, household heads at the lower educational level should get formal and informal trainings about entrepreneurship and headship so as to cope with current national and global crisis.

### **Community level**

- Household heads and/or members should put their maximum effort to increase their income.

### **For researchers**

- Further longitudinal studies should be done to measure food security status at individual level and to analyze the relationship between household food access, utilization and individual nutritional status using sample size large enough for comparisons.

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## **Annex I: Study Information Sheet (SIS) & consent form**

**Title of the project:** The Effect of Soaring Food Price on Household Food Security and Maternal Nutrition in Addis Ababa

**Background of the study (Summary):** Since recently, the world's economic crisis, mainly the high food price is increasing the number of poor people and aggravating their living conditions. In big urban areas of Ethiopia like Addis Ababa where populations rely on market based household food supply, increasing price of food and nonfood commodities can threaten households' food security status. Thus, it is crucial to generate evidence about the food security and nutritional status of urban households during time of high food price.

**Objective:** the main objective of this study is to assess the prevalence of household food insecurity and maternal under nutrition and determine the relationship between high food price household food security and maternal nutrition.

**Significance of the study:** This planned study will assess the impact of high food price on household food security and maternal nutrition so as to provide relevant information for policy makers and humanitarian agencies to design and implement effective interventions.

**Study site and period of the study:** the study will be conducted among household in Addis Ababa city administration from November 10, 2011 to November 20, 2011.

**Study procedures:** The study will be conducted using interview with household heads and measurement of height and weight of mothers. The questions and measurements will take 30-45 minutes on average.

**Potential risks/Benefits associated:** there is no any risk or direct benefit of this study for participants, except that participants may sacrifice their few minutes during interview and can also be benefited from the final result of the assessment.

**Confidentiality:** the information collected from each household will be kept in a secret manner within only the investigator and other legal authorities who need it.

**Rights of participation:** After your understanding about the study, you have full right to refuse, withdraw or completely reject part or all of your participation in the study. But we encourage your full participation as the answers you give on this form and your participation in taking your measurements are very important to this study and you are not required to provide personal information like name or address

**Termination of the study:** in this study if participants get discomfort, they are free to withdraw from the study at any time, and this will not bring any impact on them.

If there are any questions, rights and complaints, participants can contact the principal investigator through the following address:

*Tesfay Birhane /Mobile: 0910491935/*

*Email: [tsfbr2009@yahoo.com](mailto:tsfbr2009@yahoo.com).*

**Consent Form:** If you understand all about the study, I am asking you politely to participate in this interview.

**May I get your permission to continue my interview?**

1. Yes (Signature) \_\_\_\_\_

2. No: *Thank You*

## Annex II: English Version questionnaires

### Questionnaires to assess the effect of high food price on household food insecurity and maternal nutrition in Addis Ababa, February, 2012.

Questionnaire serial number (code): \_\_\_\_\_ Date of data collection: \_\_\_\_\_  
 Sub-City \_\_\_\_\_ Wereda \_\_\_\_\_ House hold number: \_\_\_\_\_  
 Data collector's Name: \_\_\_\_\_ Signature: \_\_\_\_\_  
 Supervisor's Name: \_\_\_\_\_ Signature: \_\_\_\_\_

#### Section 1: Questions about general households' Economic and demographic characteristics

S. No	Questions	Respond options	Code
1.1.	Sex of Household head	1. Male 2. Female	__
1.2.	What is the Age of Household head	_____ years	__
1.3.	Religion	1. Orthodox 3. Protestant 2. Muslim 4. Catholic 5. Others __	__
1.4.	What is the educational status of household head	1. Uneducated 2. Elementary school 3. Secondary school 4. Diploma and above	__
1.5.	What is the family size of your Household	_____	__
1.6.	Who is the owner of the house you live in?	1. It is our private house 2. Gifted from government /relatives/ 3. Kebele rent 4. Rent from private owner	
1.7.	What is the employment status of household head	1. Unemployed 2. Self employed 3. Government (NGO) employed 4. Wage labor 5. Pensioner 6. Other (specify): _____	__
1.8.	Average monthly house hold income	_____ Birr	
1.9.	What is the average monthly expenditure of your Household	_____ Birr	
1.10.	In the last six months what was the main source of your household food consumption	1. Purchased from market 2. From own production 3. Remittance from any agent 4. Begging 5. Others (specify) _____	__
1.11.	Could you tell me the share of the following commodities in your household expenditure (in percentage or Birr)	1. Food items _____ 2. House rent _____ 3. Cookingfuel/charcoal/electricity _____ 4. Water and light _____ 5. Education _____ 6. Transport _____	

		7. Social _____ 8. Alcohol/other substances 9. Others (specify) _____	
1.12.	Could you tell me if the type of Asset available at your house	1. TV, DVD, Radio/Tape, Dish, 2. Refrigerators. 3. Modern Beds, tables and chair 4. Sofa set 5. Shelf 6. Jewelry (gold/silver): necklaces, ring, 7. Bicycle, motorcycle 8. car	
1.13.	In the last 6 months, have you ever sold any type of HH Asset to cover your expenditure?	0. No 1. Yes, if yes how many (1, 2, $\geq 3$ )	<input type="text"/>

### **\*Section 2: Occurrence and Frequency of Household Food Insecurity**

<b>S. NO</b>	<b>Question</b>	<b>Response options</b>	<b>Code</b>
2.1.	In the past four weeks, did you worry that your HH would not have enough food?	0 = No (skip to Q2) 1=Yes	<input type="text"/>
2.1.a	How often did this happen?	1 = Rarely (once or twice in the last 4 weeks ) 2 = Sometimes (3-10 times) 3 = Often (more than ten times)	<input type="text"/>
2.2.	In the past four weeks, were you or any HH member not able to eat the kinds of foods you preferred because of a lack of resources?	0 = No (skip to Q3) 1=Yes	<input type="text"/>
2.2.a	How often did this happen?	1 = Rarely (once or twice) 2 = Sometimes (3-10 times) 3 = Often (more than ten times)	<input type="text"/>
2.3.	In the past four weeks, did you or any HH member have to eat a limited variety of foods due to a lack of resources?	0 = No (skip to Q4) 1 = Yes	<input type="text"/>
2.3.a	How often did this happen?	1 = Rarely (once or twice) 2 = Sometimes (3-10 times) 3 = Often (more than ten times)	<input type="text"/>
2.4.	In the past four weeks, did you or any HH 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?	0 = No (skip to Q5) 1 = Yes	<input type="text"/>
2.4.a	How often did this happen?	1 = Rarely (once or twice) 2 = Sometimes (3-10 times) 3 = Often (more than ten times)	<input type="text"/>
2.5.	In the past four weeks, did you or any HH member have to eat a smaller meal than you felt you needed because there was not enough food?	0 = No (skip to Q6) 1 = Yes	<input type="text"/>
2.5.a	How often did this happen?	1 = Rarely (once or twice) 2 = Sometimes (3-10 times ) 3 = Often (more than ten times)	<input type="text"/>

2.6.	In the past four weeks, did you or any other HH member have to eat fewer meals in a day because there was not enough food?	0 = No (skip to Q7) 1 = Yes	<input type="checkbox"/>
2.6.a	How often did this happen?	1 = Rarely (once or twice) 2 = Sometimes (3-10 times) 3 = Often (more than ten times)	<input type="checkbox"/>
2.7.	In the past four weeks, was there ever no food to eat of any kind in your HH because of lack of resources to get food?	0 = No (skip to Q8) 1 = Yes	<input type="checkbox"/>
2.7.a	How often did this happen?	1 = Rarely (once or twice) 2 = Sometimes (3-10 times) 3 = Often (more than ten times)	<input type="checkbox"/>
2.8.	In the past four weeks, did you or any HH member go to sleep at night hungry because there was not enough food?	0 = No (skip to Q9) 1 = Yes	<input type="checkbox"/>
2.8.a	How often did this happen?	1 = Rarely (once or twice) 2 = Sometimes (3-10 times) 3 = Often (more than ten times)	<input type="checkbox"/>
2.9.	In the past four weeks, did you or any HH member go a whole day and night without eating anything because there was not enough food?	0 = No (skip to section 3) 1 = Yes	<input type="checkbox"/>
2.9.a	How often did this happen?	1 = Rarely (once or twice) 2 = Sometimes (3-10 times) 3 = Often (more than ten times)	<input type="checkbox"/>
<b><i>*Derived from version 3 of the Household Food Insecurity Access Scale (HFIAS) measurement guide</i></b>			
2.10	In the 4 weeks, do you believe that all member of your household have feed the type of food they want both in quality and quantity	0= no 1= yes (skip to Q 3.3 )	<input type="checkbox"/>
2.11	If you say no, what do you think is the reason for? Because:	1. Of illness and loss of appetite 2. Unable to prepare due to lack of time 3. Food is not available at home and market 4. We couldn't by food due to increased in price 5. We couldn't by food due to loss of my income 6. Others (specify):_____	<input type="checkbox"/>
4.12	Different people take different actions to cope with increase in food price, what about you and your family member did?	1. Reduce the amount of consumed diet per meal 2. Cut the number of meals consumed per day 3. Shift to less expensive and poor quality diet 4. Reduce on non food expenditures 5. Receive for food or cash aid 6. Taking a loan from bank or other person 7. Selling any house hold assets 8. Others (specify)_____	<input type="checkbox"/>

### Section 3: Food diversity & consumption score of Households in Addis Ababa, January 2012

Now, I will ask you the different food groups if your household members have consumed in the last 24 hours? You will respond by saying Yes or No for each food group.( <i>if there is any fasting or special ceremony in the house, please ask about the day before the that day</i> )			<b>Code</b>
<b>Questions</b>	<b>(1) Yes (√)</b>	<b>(2) No (√)</b>	
Cereals ( <i>teff, wheat, maiz, rice, sorghum</i> , & their products like ‘pasta’, Macaroni, porridge			_
Pulses/legumes			_
Vegetables			_
Fruits			_
Root and tubers			_
Meat, poultry			_
Eggs			_
Fish and seafood			_
Milk and milk products			_
Oil/fats			_
Sugar/honey			_
Miscellaneous (other foods)			_

### Section 4: Anthropometric measurement for women’s nutritional status

S. No	Measurement	Value
4.1	Age of mother (ask if not HH head)	_____ years
4.2	Starting from the last three months have you been in diet due to some illness or to reduce weight?	0= No 1= Yes
4.3	Do you have any of the chronic illnesses can reduce weight?	0= No 1= Yes
4.4	Weight _____Kg	Height _____meter

I have finished my interview and measurement and if you have any question or suggestion you can raise, if not I ask you to put your signature confirming that this data represents you and your household.

I confirm that this data is mine:    date \_\_\_\_\_Signature\_\_\_\_\_

**Annex III: Questionnaires (Amharic version)**

**በአዲስ አበባ ዩኒቨርሲቲ ጤና ሳይንስ ኮሌጅ የሕ/ሰብ ጤና አጠባበቅ ት/ቤት የቤተሰብ ምግብ ዋስትናና የእናቶች የምግብ ሁኔታ በምግብ ዋጋ ንረት ወቅት ለማየት የተዘጋጀ መጠይቅ-ጥር 2004 ዓ.ም**

ከዚህ በላይ ስለጥናቱ የተጻፈውን መግለጫ በሚገባኝ ቋንቋ አንብቤ ወይንም ተነቦልኝ ተረድቻለሁ። በመሆኑም በዚህ ጥናት ለመሳተፍ፡ ሀ/ ፍቃደኛ ነኝ። ፊርማ \_\_\_\_\_ ለ/ ፍቃደኛ አይደለሁም (ወደሚቀጥለው ቤት ይለፉ)

የመጠይቁ መለያ ቁጥር: _____	መረጃው የተሰበሰበበት ቀን: _____
ጥናቱ የተካሄደበት ክ/ከተማ: _____ ወረዳ _____ ስፈር _____	የቤት ቁጥር: _____
የመረጃ ሰብሳቢው ስም: _____	ፊርማ: _____
የመስክ ተቆጣጣሪ ስም: _____	ፊርማ: _____

**ክፍል1: ስለ ቤተሰብ አጠቃላይ ሁኔታና የቤተሰብ ገቢና ወጪ ለመዳሰስ የተዘጋጀ መጠይቅ**

ተ.ቁ	ጥያቄ	አማራጭ መልሶች	ኮድ
101	የቤተሰብ ሐላፊ □ታ	1. ወንድ                      2. ሴት	_____
102	የቤተሰብ ሐላፊ ዕድሜ	_____ ዓመት	_____
103	የሚከተሉት ሃይማኖት ምንድ ነው?	0. ኦርቶዶክስ                      4. ካቶሊክ 1. ሙስሊም                      5. ሌላ ካለ ይጥቀሱ _____ 2. ፕሮቴስታንት	_____
104	የቤተሰብዎ ብዛት ስንት ነው?	_____	_____
105	የቤተሰብዎ ሐላፊ ምን ያህል ተምረዋል?	1. ምንም ያልተማረ/ች                      3. 2ኛ ደረጃ 2. 1ኛ ደረጃ                      4. ዲፕሎማ ወይም ከዛ በላይ	_____
106	የቤተሰብዎ ሐላፊ ስራ ምንድ ነው ?	1. ስራ የሌለው/ላት                      5. የግል ስራ የሚስራ 2. ነጋዴ                      6. የቀን ሰራተኛ 3. የመንግስት ሰራተኛ                      7. ጡረተኛ 4. የግል ድርጅት ሰራተኛ                      8. ሌላ ካለ ይጥቀሱ: _____	_____
107	ባለፉት አራት ሳምንታት ቤተሰብዎ ምግብ የሚያገኘው በዋናነት ከየት ነበር?	1. ከገበያ በመግዛት                      4. ብድር 2. ከራሳችን እርሻምርት                      5. በልመና 3. በእርዳታ	_____
108	የሚኖሩበት ቤት የማን ነው	1. የራሳችን                      3. የግለሰቦች ኪራይ 2. የቀበሌ ኪራይ                      4. ከመንግስት/ ከዘመድ የተሰጠን	_____
109	የቤተሰብዎ የወር ገቢ ጠቅላላ ድምር ስንት ነው?	_____ ብር	_____
110	የቤተሰብዎ የወር ወጪ ጠቅላላ ድምር ስንት ነው?	_____ ብር	_____
111	ከጠቅላላ የቤተሰብዎ ወጪ በየወሩ የሚያወጡት ወጪ ዝርዝር እንደሚከተለው ሊነግሩኝ ይችላሉ?	1. ለምግብ _____ ብር 2. ለቤት ክራይ _____ 3. ለምግብ ማብስያ _____ 4. ለውሃና መብራት _____ 5. ለትራንስፖርት _____ 6. ለትምህርት _____ 7. ለአልኮል መጠጦች _____ 8. ለጫት/ሌላ ሱስ _____ 9. ለማሕበራዊ ወጪ _____ 9. ሌላ ካለ _____	_____
112	ቀጥሎ ከተዘረዘሩት ንብረቶች በእናንተ ቤተሰብ የሚገኙት የተኞቹ ናቸው? (መልስዎን በማክበብ ይለዩ)	- ቴሌቪዥን፣ ዲቪዲዮ፣ ሬዲዮ/ቴፕ፣ ማቀዝቀዣ፣ - አልጋ፣ ወንበርናጠረጴዛ፣ የመቀመጫ ሶፋ፣ የዕቃ ቡፌ	_____

		<ul style="list-style-type: none"> <li>- ከወርቅ/ከብር የተሰሩ ጌጣጌጦች</li> <li>- መኪና፣ ሞቶርሳይክል፣ ብስክሌት፣ ጋሪ</li> <li>- እንስሳት (ደሮ፣ ላም፣ የቀንድ ከብት)</li> </ul>	
113	ባለፉት ስድስት ወራት የምግብ እጥረት ለመቋቋም ብለው የቤት ዕቃ ገጠው ያውቃሉ?	<ol style="list-style-type: none"> <li>1. አልሸጥኩም</li> <li>2. አዎ</li> </ol>	<input type="checkbox"/>

**ክፍል 2: የቤተሰብ የምግብ ዋስትና ሁኔታ ለመዳሰስ የተዘጋጀ መጠይቅ**

ተ.ቁ	ጥያቄ	አማራጭ መልሶች	ክድ
201	ባለፈው አንድ ወር ውስጥ በቤተሰብ ውስጥ የምግብ እጥረት እንዳያጋጥሞት ተጨንቀው ያውቃሉ?	0= አላውቅም (አላውቅም ካሉ ጥያቄ 201a ይዘለሉት) 1= አዎ	<input type="checkbox"/>
201a	መልስዎ አዎ ከሆነ ይህ ለምን ያህል ጊዜ ተከስቷል?	<ol style="list-style-type: none"> <li>1. አልፎ-አልፎ (አንዴ ወይም ሁለቴ)</li> <li>2. የተወሰነ ጊዜ (3-10 ጊዜ)</li> <li>3. ብዙ ጊዜ (ከ 10 ጊዜ በላይ)</li> </ol>	<input type="checkbox"/>
202	ባለፈው አንድ ወር ውስጥ እርሶ ወይም ሌላ የቤተሰብ አባል በምግብ እጥረት ምክንያት የሚፈልጉትን ምግብ ሳይመገቡ ቀርተዋል?	0= የለም (የለም ካሉ ጥያቄ 202a ይዘለሉት) 1 = አዎ	<input type="checkbox"/>
202a	መልስዎ አዎ ከሆነ ይህ ለምን ያህል ጊዜ ተከስቷል?	<ol style="list-style-type: none"> <li>1. አልፎ-አልፎ (አንዴ ወይም ሁለቴ)</li> <li>2. የተወሰነ ጊዜ (3-10)</li> <li>3. ብዙ ጊዜ (ከ 10 ጊዜ በላይ)</li> </ol>	<input type="checkbox"/>
203	ባለፈው አንድ ወር ውስጥ እርሶ ወይም ሌላ የቤተሰብ አባል በምግብ አቅርቦት ምክንያት የሚመገቡዎቸው የምግብ ዓይነቶች ቀንሰዋል?	0 = የለም (የለም ካሉ ጥያቄ 203a ይዘለሉት) 1= አዎ	<input type="checkbox"/>
203a	መልስዎ አዎ ከሆነ ይህ ለምን ያህል ጊዜ ተከስቷል?	<ol style="list-style-type: none"> <li>1. አልፎ-አልፎ (አንዴ ወይም ሁለቴ)</li> <li>2. የተወሰነ ጊዜ (3-10 ጊዜ)</li> <li>3. ብዙ ጊዜ (ከ 10 ጊዜ በላይ)</li> </ol>	<input type="checkbox"/>
204	ባለፈው አንድ ወር ውስጥ እርሶ ወይም ሌላ የቤተሰብ አባል በምግብ አቅርቦት ምክንያት የማይፈልጉትን የምግብ ዓይነት ተመግበዋል?	0 = የለም (የለም ካሉ ጥያቄ 204a ይዘለሉት) 1= አዎ	<input type="checkbox"/>
204a	መልስዎ አዎ ከሆነ ይህ ለምን ያህል ጊዜ ተከስቷል?	<ol style="list-style-type: none"> <li>1. አልፎ-አልፎ (አንዴ ወይም ሁለቴ)</li> <li>2. የተወሰነ ጊዜ (3-10 ጊዜ)</li> <li>3. ብዙ ጊዜ (ከ 10 ጊዜ በላይ)</li> </ol>	<input type="checkbox"/>
205	ባለፈው አንድ ወር ውስጥ እርሶ ወይም ሌላ የቤተሰብ አባል በምግብ ዕጥረት ምክንያት የሚመገቡትን የምግብ መጠን ቀንሰዋል?	0 = የለም (የለም ካሉ ጥያቄ 205a ይዘለሉት) 1= አዎ	<input type="checkbox"/>
205a	መልስዎ አዎ ከሆነ ይህ ለምን ያህል ጊዜ ተከስቷል?	<ol style="list-style-type: none"> <li>1. አልፎ-አልፎ (አንዴ ወይም ሁለቴ)</li> <li>2. የተወሰነ ጊዜ (3-10 ጊዜ)</li> <li>3. ብዙ ጊዜ (ከ 10 ጊዜ በላይ)</li> </ol>	<input type="checkbox"/>
206	ባለፈው አንድ ወር ውስጥ እርሶ ወይም ሌላ የቤተሰብ አባል በምግብ ዕጥረት ምክንያት በቀን ምግብ የሚበሉባቸው ገዢዎቻችን ቀንሰዋል?	0 = የለም (የለም ካሉ ጥያቄ 206a ይዘለሉት) 1= አዎ	<input type="checkbox"/>
206a	መልስዎ አዎ ከሆነ ይህ ለምን ያህል ጊዜ ተከስቷል?	<ol style="list-style-type: none"> <li>1. አልፎ-አልፎ (አንዴ ወይም ሁለቴ)</li> <li>2. የተወሰነ ጊዜ (3-10 ጊዜ)</li> <li>3. ብዙ ጊዜ (ከ 10 ጊዜ በላይ)</li> </ol>	<input type="checkbox"/>
207	ባለፈው አንድ ወር ውስጥ በምግብ ዕጥረት ምክንያት ማንኛውም የሚበላ ምግብ ከቤት ጠፍቶ ያውቃል?	0 = የለም (የለም ካሉ ጥያቄ 207a ይዘለሉት) 1= አዎ	<input type="checkbox"/>
207a		1. አልፎ-አልፎ (አንዴ ወይም ሁለቴ)	<input type="checkbox"/>

	መልስዎ አዎ ከሆነ ይህ ለምን ያህል ጊዜ ተከስቷል?	2. የተወሰነ ጊዜ (3-10 ጊዜ ባለፉት) 3. ብዙ ጊዜ (ከ 10 ጊዜ በላይ)	
208	ባለፈው አንድ ወር ውስጥ እርስዎ ወይም ሌላ የቤተሰብ አባል በምግብ ዕጥረት ምክንያት እየተራቡ ምግብ ሳይበሉ ተኝተው ያውቃሉ?	0 = የለም (የለም ካሉ ጥያቄ 208a ይዘለሉት) 1= አዎ	<input type="checkbox"/>
208a	መልስዎ አዎ ከሆነ ይህ ለምን ያህል ጊዜ ተከስቷል?	1. አልፎ-አልፎ (አንዴ ወይም ሁለቱ) 2. የተወሰነ ጊዜ (3-10 ጊዜ) 3. ብዙ ጊዜ (ከ 10 ጊዜ በላይ)	<input type="checkbox"/>
209	ባለፈው 1 ወር ውስጥ ማንኛውም የቤተሰብ አባል በምግብ ዕጥረት ምክንያት እየተራቡ ቀንና ሌሊት ምላ ምግብ ሳይበሉ ቀርተው ያውቃሉ?	0= የለም (የለም ካሉ ወደ ክፍል 3 ይለፉ) 1= አዎ	<input type="checkbox"/>
209a	መልስዎ አዎ ከሆነ ይህ ለምን ያህል ጊዜ ተከስቷል?	1. አልፎ-አልፎ (አንዴ ወይም ሁለቱ) 2. የተወሰነ ጊዜ (3-10 ጊዜ) 3. ብዙ ጊዜ (ከ 10 ጊዜ በላይ)	<input type="checkbox"/>
210	ባጠቃላይ ባለፉት አራት ሳምንታት ውስጥ ሁሉም የቤተሰብ አባላት የሚፈልጉትን የምግብ ዓይነትና መጠን ተመግቦታል ብለው ያምናሉ?	0 = አለተመገቡም 1 = አዎ ተመግቦታል (ጥያቄ 211ን ይዘለሉት)	<input type="checkbox"/>
211	አልተመገቡም ብለው ካመኑ ምክንያቱ ምንድነው ብለው ያስባሉ? (ከአንድ በላይ መልስ መስጠት ይቻላል)	1. በህመም ወይም የምግብ ፍላጎት በመቀነስ 2. በጊዜ እጥረት ምግብ አለመዘጋጀት 3. የምግብ ዋጋ በመጨመሩ መግዛት ስላልቻልን 4. ገቢያችን በመቀነሱ መግዛት ስላልቻልን 5. ሌላ ካለይጥቀሱ: _____	<input type="checkbox"/>
212	እርስዎ ቤተሰብዎ የምግብ ዕጥረት በሚያጋጥሞት ጊዜ ምን ዓይነት የመቋቋም ስልቶች ተጠቅመው ያውቃሉ? (ከአንድ በላይ መልስ መስጠት ይቻላል)	1. የምንመገበው የምግብ መጠን መቀነስ 2. በቀን የምመገቡበት ጊዜ መቀነስ 3. ጠራታቸውና ዋጋቸው የቀነሱ ምግቦች በመቀየር 4. ተጨማሪ ስራ በመስራት ገቢያችን በመጨመር 5. ምግብ-ነክ ያለሆኑ ነገሮችን ወጪ በመቀነስ 6. የቤት ዕቃዎች/ንብረቶች በመገጥጥ 7. የምግብ ወይም የገንዘብ እርዳታ በመቀበል 8. ከባንክ ወይም ከሌላ ብድር በመውሰድ 9. ሌላ ካለ ይጥቀሱ: _____	<input type="checkbox"/>

**ክፍል 3: በቤተሰብ ውስጥ ባለፉት 24 ሰዓታት የተበሉ የምግብ ዓይነቶች ለማየት የተዘጋጀ መጠይቅ**

304	ባለፉት 24 ሰዓታት ውስጥ ከዚህ በታች ከተዘረዘሩት የምግብ ዓይነቶች የተዘጋጁ ምግቦች በተሰጠው ተመግቦታል? {እባክዎ ባለፉት 24 ሰዓታት በቤትዎ ውስጥ በዕም ምክንያት ያለተበሉ ምግቦች ካሉ ወይም በማንኛውም ምክንያት ልዩ የምግብ ዝግጅት ተደርጎ ከሆነ ከዛ በፊት ለነበረው ቀን መልስ ይስጡ}			
	የምግብ ዓይነቶች በቡድን	1. አዎ (✓)	2. የለም (✓)	ኮድ
304.1	እንጀራ፣ ዳቦ፣ ፓስታ፣ ማኮረኒ፣ ወይም ሌሎች ከጥራጥሬ የተሰሩ ምግቦች			□
304.2	ሽሮ፣ ክክ (ከዓተር ምስር፣ ከባቁላ ወይም ሽምብራ የተዘጋጁ ምግቦች)			□
304.3	አትክልቶች (ጎመን፣ቴማቴም)			□
304.4	ፍራፍሬዎች (ብርቱኳን፣ ሙዝ፣ ማንጎ ወዘተ.)			□
304.5	ስራስሮችና ከመሬት በታች የሚገኙ ፍራፍሬዎች (ድንች፣ ካሮት)			□
304.6	ሥጋ (ከተለያዩ እንስሳት) እና/ወይም፣ ደሮ			□
304.7	እንቁላል			□
304.8	ዓሣ			□
304.9	ወተትና የወተት ውጤቶች			□
304.10	ዘይት ወይም ሌሎች ቅባቶች			□
304.11	ስኳር ወይም ማር			□
304.12	ሌሎች ምግቦች (ማጣፊጫ፣ሻይ፣ ቡና)			□

**ክፍል 5: ስለ እናቶች አመጋገብና የጤና ሁኔታ የሚዳስስ መጠይቅ**

ተ.ቁ	ጥያቄዎች	አማራጭ መልሶች	ኮድ
501	የእናት ዕድሜ	_____ ዓመት	
502	ካለፉት አራት ሳምንታት ጀምሮ ክብደትዎ ሊቀንስ የሚችል የተለየ አመጋገብ ወይም እርምጃ ወስደዋል?	0 = የለም 1 = አዎ	□
503	ባለፉት አራት ሳምንታት ውስጥ ክብደትዎ ሊቀንስ የሚችል ማንኛውም የበሽታ ዓይነት ታምመው ያውቃሉ?	0= የለም 1= አዎ (በሽታው ይጥቀሱ)	□
504	ክብደት _____ ኪ.ግ.                      2. ቁመት _____ ሜትር		

ከእረሶ ጋር የነበረኝን ቆይታ ጨራሰሁኝ ስለሆነ፣ ጥያቄ ወይም አስተያየት ካሎት ማነሳት ይችላሉ።  
**ላደረጉት ቀና ተሳትፎ አመሰግናለሁ!!**

## Annex IV: Qualitative (Focus Group Discussion) Guide

Number of participants M: 12 F: 19 Total 31\_\_\_\_\_

Name of Facilitator Tesfaye Birhane

Name of Note taker/Recorder Abrha Birhane

Dates of discussion January 17,20 &21,/2012/

### I. Introduction (5 minutes)

**Research Title:** Assessment of household food insecurity and coping strategies in the context of high food price in Addis Ababa

#### **Objectives of the qualitative survey:**

- ✓ To explore households perception of food security
- ✓ To explore the current food security status of households
- ✓ To explain the relationship between food security and food price
- ✓ To identify coping strategies of households during food security

Thank you for coming, my name is \_\_\_\_\_. This is my colleague named\_\_\_\_\_.

- Now we are going to discuss about food price and household food security in Addis Ababa.
- The purpose of this study is to generate information about household food insecurity status, its relation to food price and the common coping strategies in Addis Ababa that will help policy makers and design and implement intervention projects.
- First, I would like to confirm all of you that there will not any problem/harm or any intended direct benefit from participating in this discussion.
- Our discussion will be guided by some questions that need your explanation data will be recorded both by note taker and tape recorder.
- The information collected from this discussion will be maintained and used in confidential manner and it is not mandatory to give your name unless you want to do so.
- There is no right or wrong answer for any question. You can share your idea freely and every participant is encouraged for active participation.
- We will stay together for about 60 minutes and I am asking your patience for that.
- If you have any concern before we start our discussion, you are welcomed.

## **II. Discussion Questions**

1. How is life in Addis Ababa?
2. Do you think you or people in your neighborhood are getting the type and amount of food they want? If not what do you think is the reason?
3. Based on your understanding, when do you say households are food secured or insecure?
4. How do you feel about the current household food security status in Addis Ababa? Is it a problem?
5. Based on your opinion and experience, what are the reasons for food insecurity?
6. How do you explain the current food price in Addis Ababa? How do you see its trend?
7. How do you explain the relationship between food price and household food security?
8. If you believe food insecurity is a problem, how do you explain the severity of food insecurity? Could you explain this using your experiences?
9. Of all household members, who is most vulnerable for the effect of food insecurity?
10. What are the coping strategies with food insecurity that you observe in your community?
11. How do you explain the role of government subsidization on some staples like wheat and oil.
12. Do you have any experience about food price, food insecurity/hunger or any other related issues you want to share us?

### **Summary (3 minutes)**

We are going to close our discussion; do you have anything you want to say or ask a question?

**Thank You!**

## Annex V: Profile of Focus group discussion (FGD) participants

Code No.	Sub-city	Sex	Age	Occupation	Education	Family Role
A1	Arada	F	23	Gov't employed	Diploma	Head
A2	Arada	M	28	Gov't employed	Degree	Housewife
A3	Arada	F	48	Gov't employed	12 <sup>+</sup>	Housewife
A4	Arada	M	27	Trader	Secondary	Head
A5	Arada	M	24	Daily worker	Primary	Member
A6	Arada	M	28	Trader	Secondary	Head
A7	Arada	M	29	Trader	Secondary	Head
A8	Arada	M	40	Gov't employed	Diploma	Head
A9	Arada	M	28	Trader	Secondary	Head
A10	Arada	F	36	Gov't employed	12 <sup>+</sup>	Housewife
G01	Gulele	F	40	Unemployed	Illiterate	Housewife
G02	Gulele	F	45	Unemployed	Illiterate	Housewife
G03	Gulele	F	40	Unemployed	Illiterate	Head
G04	Gulele	M	38	Gov't employed	Secondary	Head
G05	Gulele	F	34	Unemployed	Illiterate	Head
G06	Gulele	M	68	Pensioned	Secondary	Housewife
G07	Gulele	M	68	Pensioned	Secondary	Head
G08	Gulele	F	19	Student	Secondary	Member
G09	Gulele	M	32	Gov't employed	Degree	Head
G10	Gulele	M	35	Gov't employed	Secondary	Head
G11	Gulele	F	26	Gov't employed	Diploma	Member
G1	Gulele	F	46	Self employed*	Elementary	Housewife
G2	Gulele	F	49	Self employed	Illiterate	Housewife
G3	Gulele	F	50	Self employed	Illiterate	Head
G4	Gulele	F	58	Self employed	Illiterate	Housewife
G5	Gulele	F	38	Self employed	Elementary	Head
G6	Gulele	F	30	Self employed	Elementary	Housewife
G7	Gulele	F	52	Self employed	Illiterate	Head
G8	Gulele	F	43	Self employed	Elementary	Housewife
G9	Gulele	F	50	Self employed	Illiterate	Head
G10	Gulele	F	55	Self employed	Illiterate	Head

\*- have union entrepreneurship

## DECLARATION

I, the undersigned, declare that this is my original work and has never been presented in this or any other university and that all source of materials used for the thesis and individuals contributed for it have been fully acknowledged.

Name of Investigator: TESFAY BIRHANE

Signature: \_\_\_\_\_

Place: Addis Ababa University, School of Public health, Addis Ababa-Ethiopia

Date of Submission: \_\_\_\_\_

The thesis has been submitted for examination with my approval as university advisor:

Name: SOLOMON SHIFERAW (MD, MPH)

Signature: \_\_\_\_\_

Date: \_\_\_\_\_