COLLEGE OF DEVELOPMENT STUDIES

CENTER FOR FOOD SECURITY STUDIES

DETERMINANTS OF FOOD INSECURITY AND COPING STRATEGIES OF INTERNALLY DISPLACED HOUSEHOLDS RESIDING IN GELAN TOWN, ETHIOPIA

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF SCIENCE IN FOOD SECURITY AND DEVELOPMENT STUDIES

BY

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MSC THESIS SUBMITTED TO CENTER FOR FOOD SECURITY STUDIES, COLLEGE OF DEVELOPMENT STUDIES ADDIS ABABA UNIVERSITY IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF SCIENCE IN FOOD SECURITY AND DEVELOPMENT

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ADDIS ABABA

DECLARATION

I, **Solomon Bogale,** do hereby declare to Addis Ababa University School of Graduate Studies that this thesis proposal is a product of my original research work, and it has not been submitted to any other university for any academic degree. Materials and information other than my own are duly acknowledged.

Name: _____

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As a supervisor/co-adviser of the thesis, I certify that I have read and evaluated the thesis prepared by **Solomon Bogale Alemayehu** entitled Determinants of food insecurity and coping strategies of internally displaced households residing in Gelan town, Ethiopia' and recommend for Open Defense as fulfilling the requirement for the **Degree of Master of Science in Food Security and Development Studies**.

_____ _____

Name, Major Advisor Signature & Date

As members of the Examining Board of the Thesis Open Defense, we certify that we have read and evaluated the thesis prepared by **Solomon Bogale Alemayehu** entitled 'Determinants of food insecurity and coping strategies of internally displaced households residing in Gelan town, Ethiopia 'and recommend that it is acceptable as the thesis required for the Master of Science Degree in Food Security and Development Studies.

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_____

Chairperson of the Centre or Graduate Program Coordinator

This thesis work is dedicated to my beloved wife Frehiwot Getachew, my daughter Arsema, and my sons Fenan and Olani

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List of Acronyms and Abbreviations

CID	Conflict Induced Displacement
CSI	Coping Strategy Index
DRR	Disaster Risk Reduction
FANTA	Food and Nutrition Technical Assistance Project
FAO	Food and Agricultural Organization of the United Nations
FCS	Food Consumption Score
FGDs	Focus Group Discussions
HDDS	Household Dietary Diversity Score
HFIAS	Household Food Insecurity Access Scale
HFIAP	Household Food Insecurity Access Prevalence
H&L	Hosmer and Lemeshow Test
IDPs	Internally Displaced Peoples
IFRCRCS	International Federation for Red Cross and Red Crescent Societies
IOM	International Organization for Migration of the United Nations
KIIs	Key Informant Interviews
MDGs	Millennium Development Goals
PSNP	Productive Safety Net Program
SDGs	Sustainable Development Goals
SNNPR	Southern Nations Nationalities and Peoples Region
UNOCHA	United Nations Office for the Coordination of Humanitarian Affairs
WFP	World Food Programme of the United Nations
WFS	World Food Summit

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Abstract

This study was undertaken in Gelan town of Oromia Region with the objectives to investigate the food insecurity status of the displaced households, to identify the determinants of food insecurity, and to identify the mechanisms used by these households to cope up with food insecurity in the study area. A total of 142 randomly selected households were interviewed to collect quantitative data on demographic and socioeconomic characteristics, household dietary diversity, coping mechanisms, and food access behaviors. Besides, focus group discussions (FGDs) and key informant interviews were undertaken to collect qualitative data. Both descriptive statistics and econometric analysis were employed using SPSS version 20 software. Furthermore, ch-square and independent t-tests were conducted to investigate the relationship between the predictor variables and food security status. The descriptive analysis showed that about 18 percent of the study participants were food secure while 82 percent of them were food insecure households, indicating that the community under study was predominantly food insecure. The age and educational level of the household had a significant ($P<0.05$) influence on the food security status. Similarly, the study found out that household size, monthly household income, employment status, access to credit, and remittance had a significant influence on the food security status of the internally displaced people (IDP). However, the results of the binary logistic regression model indicated that three of the eight explanatory variables, namely dependency ratio, education level, and monthly households' income were statistically significant ($P<0.05$) as determinants of household food security. The mean coping strategy index (CSI) score was 54.26 for the IDP households during the assessment period. During the study period, almost all the households practiced dietary change as a response to mild food shortages. At sever condition of food shortages, either borrowing food from neighbors and local shops or begging from the local community were implemented by the households. Moreover, the study confirmed that 28.2 percent of the households have practiced skipping out the whole days without eating at least for a day in a week during the study period. On the other hand, the mean dietary diversity score (HDDS) was 4.94 for the IDP households with a minimum of 2 and maximum of 8 HDDS. The study confirmed that dietary diversity was lacking with a severe problem among the 47 percent of the respondents since their diets are predominantly based on starchy staples such as cereals while little or no animal products, fruits and vegetables were consumed. Finally, the study concluded that majority of the IDP households did not have well-established and sustainable livelihood sources. Therefore, more attention should be given to these IDP households to assist them able to establish sustainable household income and livelihood sources.

Keywords: *IDP households; Food security; coping strategy, food insecurity*

CHAPTER I: INTRODUCTION

1.1 Background

Food insecurity remains one of the major challenges across the globe, especially in developing countries. Even though a lot had been done to reduce by half the number of hungry people between 1990 and 2015 (MDG, 2015), global hunger rose from 777 million in 2015 to 815 million people in 2016. According to the United Nations Food and Agriculture Organization, it is estimated that 7.6 billion people in the world, or one in ten, were suffering from chronic undernourishment in 2016 (SDGs, 2019). Mostly, developing nations face many barriers to achieving the MDGs, some unique and country-specific, others broadly shared. Common problems faced by fragile nations can be grouped into four areas: poor starting conditions; weak governance and institutions; conflict and instability; and environmental degradation. As a result, the Sustainable Development Goals (SDGs) succeeded the MDGs in 2016.

Specifically, the progress towards achieving targets for international hunger is slow. According to AHHSDIS (2014), the sub-Saharan Africa region has been affected by conflict and natural disasters and one in four people remain undernourished in this region of Africa where people are in a state of hunger and undernourishment specifically in Ethiopia (32.1 million), Tanzania (15.7 million), Nigeria (12.1 million), and Kenya (11 million) and Uganda (10.7 million). Particularly, the conflict remains the main reason behind the food shortage and hunger in the Horn and East African countries (Olika, 2009; Solomon *et al.* 2018). Reports (IFRCRCS, 2019; Cazabat, 2020) show that the majority of hungry people live in countries affected by conflict – 489 million out of the 815 million people. And almost 75 percent of the world's stunted under-five years live in countries affected by conflict - 122 million out of the 155 million children. Critically, the report showed that 10 out of the 13 major food crises in the world were driven by conflict.

In Ethiopia, the food security situation has been extremely hazardous for several millions of people due to the combination of environmental, socio-political, and developmental instabilities. Drought is a recurrent feature of the climate, and its effects are severe since agriculture is predominantly rain-fed and a source of livelihood for more than 70 percent of the population

(Endalew *et al.,* 2015). Coping mechanisms have been eroded in many households due to the high depletion of assets and displacement.

Even though the main causes of food insecurity are many, conflict-induced displacement (CID) is also becoming one of the major threats to achieving food security in Ethiopia. Practically, Ethiopia hosts the largest number of internally displaced peoples (IDPs), about three million IDPs exist in the country which is the leading position in the globe since the mid of 2017 (Shaban, 2019). Oromia and Somali regions host the largest number of displaced population followed by SNNPR, Tigray, Amhara, and Benishangul - Gumuz regions (UNOCHA, 2019); but the largest number of IDPs are currently reported in Tigray Region due to the recent conflicts. For a country that is food insecure and with a large number of unemployed people, specifically, these CID IDPs are a burden to the government and resulted in further food insecurity in the country specifically in the IDPs residing areas. This has affected not only the economic activities of the IDPs but also that of the host communities in the affected areas (Solomon, 2018; IOM, 2021a).

Conflicts adversely impact food insecurity in many different ways. They cause mass displacements, deep economic recessions, drive up inflation, disrupt employment and erode finances for social protection and health, and make necessities, including food, less available and accessible. Where people's livelihoods rely significantly on urban livelihoods such as trading and employment, conflict erodes their livelihood assets, employment, and capital. Conflict undermines resilience and often forces individuals and households to engage in increasingly destructive and irreversible coping strategies that threaten their future livelihoods, food security, nutrition, and dignity (IOM, 2019). Moreover, deteriorations in food security can exacerbate tensions and risks of conflict.

The combination of poverty and hunger, lack opportunities, unequal access to jobs, land or wealth, is a volatile mix that can create feelings of anger and hopelessness. These grievances can be exploited by individuals and groups with a desire to encourage violence. Not being able to afford enough food can be a trigger for violence and instability, particularly when institutions are weak and economic disparities are broad. Similarly, the recent surge of COVID-19 has resulted in deaths, health threats, and economic crises across the globe. The impact could potentially engulf

the better-off households too and lead to food insecurity and hunger in developing countries including Ethiopia.

Specially, among the displaced people from Somali region due to the conflict induced displacement, more than 700 households have been settled in Gelan town. However, informal and unpublished reports (LSWO, 2020) indicated that majority of these households did not have the capacity to feed their households without food aid support. Similarly, business opportunities are limited and finance is also a limiting factor to income both in self-employment and wage labor. Therefore, it is important to assess the food security situation of the IDP households and determinants of food insecurity on Gelan town. This will help design intervention and improve the livelihoods and food security status of the IDP households.

1.2 Statement of the Problem

In Ethiopia, the immediate causes of food insecurity include frequently recurring droughts and erratic rainfall patterns, ecosystem degradation, rapid population growth, the low levels of technology employed in agriculture and the resulting low productivity of the sector, poor rural infrastructure, and legacies of the past policy (Endalew *et al.,* 2015). To address the food insecurity problem, the government of Ethiopia has been making significant investments and steps, particularly through its both rural and urban productive safety net program (PSNP) and agriculture-led economic growth that is tied to improve households' livelihoods and nutrition. This has been considered as a long-lasting solution to Ethiopia's chronic poverty and food insecurity (IFPRI, 2014).

Since 2018, however, Ethiopia has faced problems largely related to political instability and insecurity that have resulted in the displacement of nearly three million people from their homes (IOM, 2019; WFP, 2019). As a result, the livelihoods and food security situation of the conflict-induced displaced peoples across the country have been deteriorated (Cazabat, 2020). In response, partially, the government and development partners have facilitated durable solutions, preferably in areas of origin. As a permanent solution, the Oromia National Regional State launched a Resettlement Program for IDPs displaced from the Somali region with urban-based livelihoods to be undertaken in some selected cities in the region. Gelan town was among the cities to be selected for settlement of the displaced communities. Thus, among 247,175 IDPs (56,038 households)

displaced in 2017, about 7,949 households with 41,053 IDPs families settled across 11 towns and cities in Oromia regions (UNOCHA, 2019). Currently, more than 750 households with an estimated 3,500 people have settled in Gelan town.

However, the previous assessment conducted by the development agencies did not investigate the food security status of the IDP households in the urban resettlement areas particularly on those households settled in the central parts of the country. Besides, such partial assessments elsewhere in the country by the development agencies such as WFP (2019) did not verify the food security status and underlying causes of food insecurity. On the other hand, the extent of the food insecurity problem differs from place to place and in accordance to the social position and actual living conditions, and so on. Therefore, it is important to assess the food security status and coping strategies of the displaced communities for further humanitarian responses and the design of sustainable development interventions in the future.

1.3 Objective of the Study

General objective

The overall objective of this study was to assess the food insecurity situation and coping mechanisms of the internally displaced households residing in Gelan Town of Oromia Region

Specific objectives

- To investigate the food insecurity status of the displaced households in the study area
- To identify the determinants of food insecurity of IDP households in the study area.
- To identify the mechanisms used by the displaced households to cope up with food insecurity

1.4 Research questions

- How is the food security status of the households affected due to conflict-induced displacement in the study area?
- What factors have determined the food insecurity of the IDP households in the study area?
- How have the displaced households coped up with the food insecurity situation in the study area?

1.5 Scope and Limitation of the Study

This study focused on assessing the food security status and coping strategies used by the displaced households who live in Gelan town. The scope of the study was limited and restricted to IDP households in Gelan town in terms of its coverage due to limited resources in terms of time, budget, and other material limitations. Food security studies usually require recall of events so that they could be subjected to some errors and biases, which may affect the quality, reliability, and accuracy of the findings of the study, specifically when a recall of a month and week is considered.

1.6 Significance of the Study

Internal displacement impacts the livelihoods, education, health, security, social life, environment, and access to housing and infrastructure of displaced people, their hosts, and the people they leave behind. Most importantly, the IDPs have lost their livelihood assets in general and their livelihood activities in particular. But knowledge of the actual status of food security status and their coping strategies in their new areas matters more to respond to the humanitarian challenges the needs of displaced peoples. Therefore, this study can enable the development practitioners and policymakers in the area of disaster risk reduction (DRR) and food security to have better knowledge on food security status in their endeavor to minimize severe food insecurity among IDPs in urban resettlement areas while paving ways for sustainable development.

1.7 Outline of the Study

The thesis was organized into five chapters: Introduction (chapter 1), Literature Review (Chapter 2), Description of the Study area and Research Methods (Chapter 3), Result and Discussion (Chapter 4), and Conclusion and Recommendation (Chapter 5).

Chapter two focused on reviewing of related literatures. The chapter starts with a review of the theoretical foundation on food security while discussing the four dimensions of food security. Furthermore, household coping strategies, empirical studies on the determinants of food insecurity were covered and discussed focusing on IDPs and urban areas. Finally, literature gaps were identified on food insecurity status of IDP household in Ethiopia with establishing the conceptual framework for the stud. Chapter three covered the research methodology, describing the study town. This section mainly focused on topics such as research design and approach followed, data

type and sources, sample size determination and sampling techniques, data collection methods and tools. Besides, data analysis techniques such as food security analysis as well as quantitative and qualitative data analysis techniques were discussed.

Chapter four covered the findings of the study started with the demographic and socioeconomic status of the IDP households. This part also included the food security status of the households, factors associated with food insecurity, determinants of food insecurity, household dietary diversity and household coping strategies. Chapter five concentrated on the concluding remarks of the study and recommendation of the study.

CHAPTER II: LITERATURE REVIEW

2.1 Conceptual Foundation of Food Security

The concept of food security was introduced in the mid of 1970s and has evolved, developed, and diversified significantly over time. The first World Food Conference held in 1974 focused on the problem of global food production, trade and stocks. Hence, the original food security debate concentrated dedicated on the adequate supply of food and ensuring the stability of these supplies through food reserves. Subsequent food security efforts have been dedicated primarily to food production and storage mechanisms to offset fluctuations in global supply and ensure the ability to import food when needed. According to Devereux (2006), food security was defined as focusing on aggregates of food supplies at national and global levels. Thus, at early periods self-sufficient production was advocated as a strategy for the countries to improve their food security status.

However, global level food security does not mean that food security is achieved at the national level. Similarly, food security at the national level does not guarantee food security at the household level. Thus, in the 1980s, the focus on food availability and supply was diverted to the questions of household and individual level's access to food (FAO, 2006). The definition that has acquired the broadest acceptance is that of the World Food Summit (WFS) in November 1996: *"Food security exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food which meets their dietary needs and food preferences for an active and healthy life.* "A range of issues were covered in this definition that could hinder the attainment of food security; it encompasses not only insufficient quality and quantity of food intake, but also anxiety about food supply and access. During the summit, numerous conceptual and measurement problems were identified concerning measuring a complex, unobservable phenomenon in food security.

Adequate supplies of food and food security are the fundamental aspects of human societies and are considered one of the essential factors of individual and social health (Jones *et al.* 2013; Weiler *et al.*, 2015). Food security is the result of an efficient food system operating whereby an efficient food system positively affects all aspects of food security. Chronic and transitory food insecurity are the two major categories of food insecurity. The inability to acquire food for a

prolonged period causes chronic food insecurity while a temporary failure of access to adequate food by the households results in transitory food insecurity (WFP, 2008). Household livelihoods are insecure when they lack ownership security, or access to resources and income-earning activities, including reserves and assets, to offset risks, ease shocks, and meet contingencies. More narrowly, livelihood strategies are undertaken essentially to facilitate food security. People enjoy food security when they have access to sufficient, nutritious food for an active and healthy life. Food insecurity exists if one or more of these conditions are not fulfilled.

2.1.1 Dimensions of food Security

The World Food Summit (1996) has introduced four main dimensions of food security, namely physical availability of food, economic and physical access to food, food utilization, and stability of the other three dimensions over time. Thus, food security is typically broken down into four more easily measurable sub-components (FAO, 2006). Details of the four food security dimensions such as (1) food availability, (2) access to food, (3) food utilization, and (4) stability or sustainability are indicated below:

***Food availability*:** refers to the physical presence of food at different levels from household to nationwide level. Food availability addresses the supply side of food security. It looks at how much food is available, regardless of the source (local production, import/net trade, or food aid), with the assumption that all food produced is consumed. However, satisfactory food supply at the national and international levels by itself does not guarantee food security at the household level (Haddad, 1997). Thus, food availability indicates if sufficient food is readily at people's disposal. FAO (2013) reported that average dietary energy supply adequacy and the average value of food production as well as the share of dietary energy supply (that are derived from food groups such as tuber, cereal, and root crops), and average protein supply of animal origin are the indicators of food availability. Food availability is commonly measured at the national level, where food security data is sourced from food balance sheets, which relate total food output to total national food consumption.

***Food access*:** refers to the ability to obtain an appropriate and nutritious diet and is in particular linked to resources at the household level. It relates to how people acquire the food they consume and is determined by two factors: economic and physical access (FAO, 2013). Economic access is

typically constrained by disposal income, food prices, and accessibility of social supports. If households cannot generate sufficient income to purchase food, they lack attainment to food (FAO, 2006). On the other hand, physical access depends on the physical infrastructure that aids access. As a food security dimension, food access reflects the demand side of food security and highlights uneven inter-household and intra-household food distribution and socio-cultural limits on food choices. Leroy *et al.* (2015) reported that access to food makes sure whether all people have enough resources to supply the food they require. According to Webb *et al.* (2006), HFIAS, DDS, and CSI indicators are widely used to determine food security in developing countries.

***Food utilization*:** refers to an individual's ability to use food for growth, nutrition, and health. Biological utilization relates to individual-level food security and is the ability of the human body to effectively convert food into energy. It also refers to the appropriate use of food-based on skill and knowledge of basic nutrition and care, as well as adequate water and sanitation (FAO, 2006). According to Haddad (1997), the ability to use food to promote health and nutrition can be impaired in an environment lacking clean water, sanitation, and child care and health facilities. Thus, utilization includes food preparation, food distribution, water, sanitation, and health care practices (Leroy *et al*., 2015). As a food security dimension, utilization is usually measured using the indicators such as DDS and food consumption surveys as well as using anthropometric measures.

Stability: refers to the at –all-times and stability dimensions point to the need for understanding current as well as likely future status at different points in time (Lovandal and Knowles, 2005). Food stability considers the stability of the other three dimensions over time (reflected in the 'at all times' component of the food security definition). It is related to people's vulnerability to and ability to cope with stresses and shocks. According to the UN (2014), factors that increase vulnerability and reduce coping ability include extreme weather events, conflict, and political and economic factors. Therefore, stability is not a stand-alone dimension and is usually incorporated into other dimension indicators. Thus, analysis of food security must capture the temporal dynamics of food security (Ike *et al.,* 2015). Stability as another dimension of food security guarantees the continuation of the three other dimensions over time.

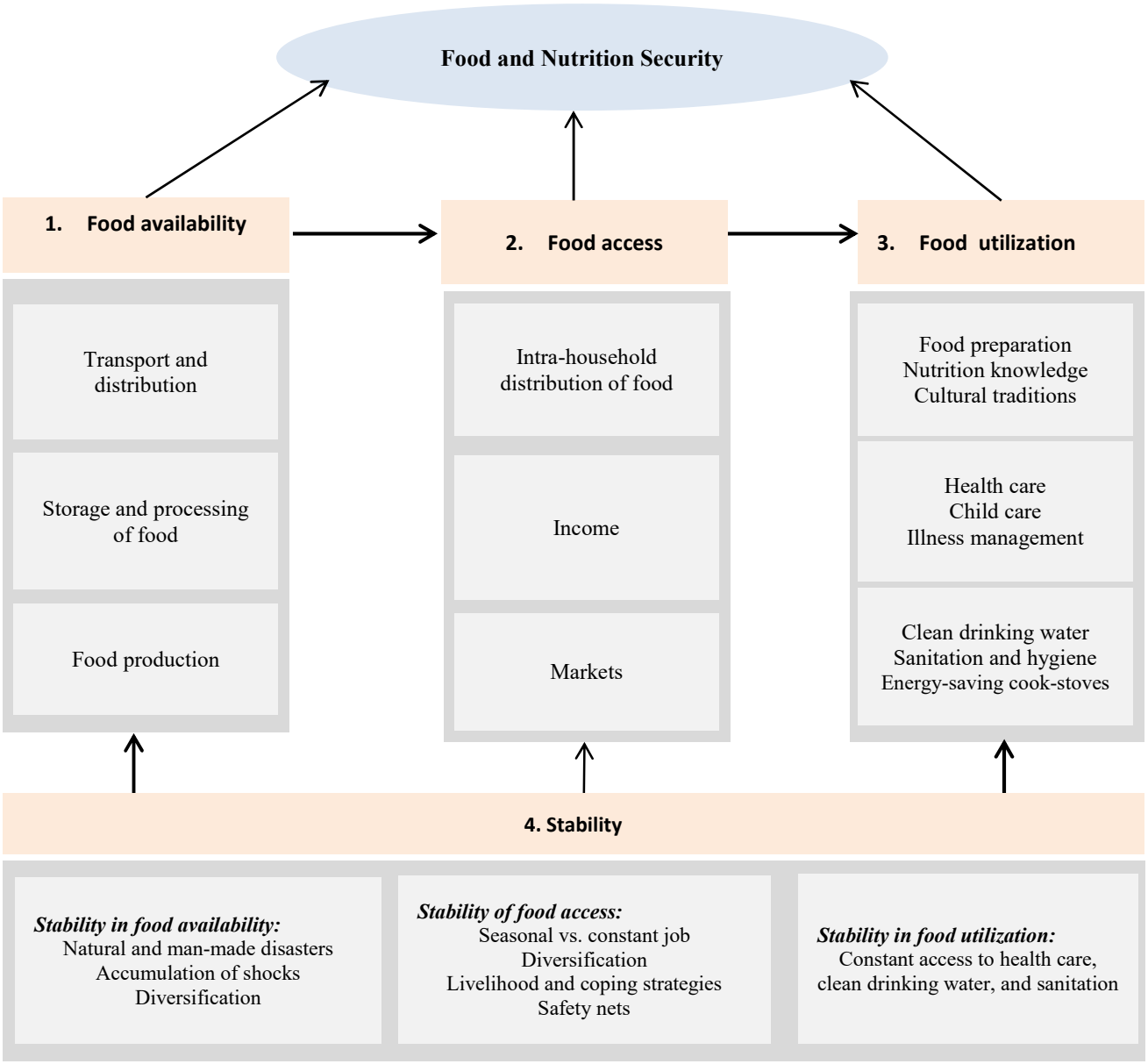

Figure 2.1 The four dimensions of food security

Source: Burchi *et al*. (2011)

2.1.2 Household coping strategies

A coping strategy is a mechanism by which relief and recovery needs are met by the households or community members as well as adjust to future disaster-related risks without the support of outsiders. Households responded differently and their coping mechanisms are adapted depending

on how bad the crisis is and what is available to manage the situation (Maxwell, 2008). The coping mechanism used by the urban households in Ethiopia includes small-scale trading, selling of household assets and parts of their houses, reliance on relief assistance, relying on remittances from relatives, requesting grain loans, and migration to other areas (Ibrahim, 2016). Limited assets level, labor, and capital usually contribute to the inability to cope or vulnerability of households.

At the IDP households' level, WFP (2019) measures two types of strategies: the coping mechanism, which affects household consumption in the short term, and the mechanisms which affect the long-term livelihood status of the households. Among coping mechanisms, one of the most frequently adopted strategies by IDPs in the short term is reducing the portion size of meals. The most recurrent strategy was relying on less preferred or less expensive food. Concerning livelihood, coping strategies, the most adopted strategies are: borrowing money, buying food on credit or borrowing food, and reducing health and education expenses.

2.2 Empirical Studies on IDPs and Food Insecurity Determinants

2.2.1 Overviews: Internal Displacement

According to The United Nations Guiding Principles on Internal Displacement (2004), internally displaced persons (also known as "IDPs") are "persons or groups of persons who have been forced or obliged to flee or to leave their homes or places of habitual residence, in particular as a result of or in order to avoid the effects of armed conflict, situations of generalized violence, violations of human rights or natural or human-made disasters, and who have not crossed an internationally recognized border." It is noted that arbitrary displacement is prohibited (Principles 5-7). However, this Gilding Principle (Principles 10-23) showed “when once persons have been displaced, they retain a broad range of economic, social, cultural, civil and political rights, including the right to basic humanitarian assistance (such as food, medicine, shelter), the right to be protected from physical violence, the right to education, freedom of movement and residence, political rights such as the right to participate in public affairs and the right to participate in economic activities”. Similarly, the Guiding Principle (28-30) stated “displaced persons have the right to assistance from competent authorities in voluntary, dignified and safe return, resettlement or local integration, including help in recovering lost property and possessions”.

IDMC's Global Report on Internal Displacement (2021) indicated that the number of people living in internal displacement has reached 55 million as of 31 December 2020 across the globe. At the end of 2020, about 40.5 million new displacements were recorded with 9.8 million people displaced due to conflict and violence. About 27.4 percent of the global total (6.8 million people) was the conflict-induced IDPS in Sub-Saharan Africa. As in previous years, Democratic Republic of the Congo, Syria and Ethiopia were the top three countries with the largest internally displaced populations due to conflict and violence in 2020 IDMC (2021). Violence and displacement continued in the Sub-Saharan Africa Region, particularly in Burkina Faso, Mozambique, Somalia, Democratic Republic of the Congo (DRC) and Ethiopia.

According to Cazabat (2020), people are usually forced to escape or leave their homes due to conflicts and violence where they significantly suffer of mortality and loss of livelihood assists. The IDPs also remain at high risk of physical attack, sexual assault and abduction, and frequently are deprived of adequate shelter, food and health services. Internal displacement is an economic burden not only for individuals but also for host communities and economies at national and international level. Thus, it was estimated that the global cost of one year of displacement was nearly $20.5 billion in 2020, a figure that covers support for IDPs' housing, education, health and security needs, and accounts for their loss of income IDMC (2021). The IDPs often lose assets when they are forced to flee their home and land. They may also be unable to pursue their former occupation, leading to unemployment, underemployment or informal work, and a significant drop in income (IFRCRCS, 2019). According to WFP (2019), livelihood losses potentially lead to reduced access to food and an increase in malnutrition. Internal displacement affects not only the lives of displaced people, but also living conditions the host communities. The economy is also directly affected by impairing or ceasing IDPs' productive activity, income and consumption, with potential ripple effects on their hosts, providers and customers. The impacts include longer-term costs of aid provision, income supplements and unemployment as well as a reduction in income tax and local revenues (Cazabat, 2020). The IDPs also tend to have fewer opportunities to regain their livelihood activities back; thus acute food shortages could lead them to chronic food shortages that in turn resulted in malnutrition (IOM, 2021b).

2.2.2 Food security situation of IDPs in Ethiopia

Ethiopia recorded the highest number of conflict-induced displacements (CID) worldwide, with 2.9 million IDPs in 2018 (Cazabat, 2020). Similarly, in 2020, the security situation deteriorated significantly in Ethiopia, particularly in the northern region of Tigray and expanding to Amhara and Afar regions. At the end of 2020, a total of 1.7 million displaced peoples were recorded in whereby more than half a million people were displaced since June 2021 in Amhara and Afar regions alone (IDMC, 2021). Recent reports by IOM (2021b) indicated that over 1 million people are displaced across 178 accessible locations in Tigray Afar and Amhara regions of Ethiopia.

Countrywide, these significantly contributed to food insecurity where millions of people were under humanitarian assistance specifically since 2018. The displacement has significantly contributed to the already existing poor economy and widespread food insecurity in Ethiopia. Besides, conflict-induced internal displacement leads the people to dramatic changes in family structure and gender roles, relations, and identities, affecting the lives of many people. On the other hand, conflict-induced economic crisis results in price inflation in the hosting communities, communicable diseases, and the decline of social infrastructures (Yigzaw and Abitew, 2019). Reports (IFRCRCS, 2019; IOM, 2019) indicated that food insecurity and under-nutrition levels remain unacceptably high among IDPs in the country as far as they have lost their livelihood assets specifically their livelihood activities. Displacement has also disrupted households' access to food, worsening food security and nutrition conditions in their new areas. According to the assessment conducted by WFP (2019), almost half of the respondent IDPs consume neither staples nor vegetables daily and very rarely consume protein-rich foods. The low levels of diversification of diets are also quite alarming, given that only two to three out of the seven food groups are consumed on average. A high food price is among the most serious shocks suffered by the majority of households. Specifically, food shortage is a recurring burden for female-headed households. The most frequently mentioned challenge was the unaffordability of food by about 67 percent of the assessment participants (WFP, 2019).

In response, the government and development agencies such as WFP have been providing humanitarian assistance (food or cash) to conflict-induced IDPs in the country since 2018. A standard monthly food basket of cereals (15 kg), pulses (1.5 kg), and vegetable oil (0.45 kg) was

distributed to each IDP in many woredas (WFP, 2019). The cash component of assistance replaced the cereal portion of the assistance package, with pulses and fortified oil provided in-kind to support the nutritional status of the households. WFP has monitored the food security status of the targeted population using the Food Consumption Score (FCS) and the Dietary Diversity Score (DDS) indicators to measure the quantity and quality of food consumption by IDPs. The findings from this assessment indicated that the low levels of diversified diets are quite alarming, given that only two to three out of the seven food groups are consumed on average.

2.2.3 Determinants of food insecurity of urban IDPs

The IDP populations can be based in either urban or rural areas. The rural based IDPs can depend on agriculture for their livelihoods. The IDPs located in the urban areas could generate income from wage and self-employment activities as well as from formal employment sometimes with greater economic opportunities (Huang and Graham (2019).

According to World Data Atlas (2021), urban population of Ethiopia grew substantially rising at an increasing annual rate 2.21 percent in 2020 whereby 21.7 percent of the population lives in urban areas.

Thus, inequality has been increasing due to migrated people to the urban areas searching for better jobs and newly opening settlements for IDPs in urban areas (Tegegn, 2015; Cazabat, 2020). In urban areas, the major reasons for food insecurity among the IDPs and other local community include food availability, supply of food into the market, access to food, purchasing power and access to market as well as food utilization, health, and morbidity status (Kaluski *et al*., 2014; WFP, 2009). Unemployment, food price inflations, and increased costs of living contributed to food insecurity in urban areas (Anand *et al*., 2019; Tadele, 2019). A household needs to have enough income to purchase sufficient food at prevailing prices. According to Tegegn (2015), the ability to achieve food security at the household level is derived from the household's resource bases (human, material, and institutional resource bases) in the urban area. The food security factors comprise educational and employment status, household demographics, urban agriculture, livelihood assets, saving, relief support or direct transfer, informal social networks, access to clean water and sanitation, and cost of living. In general, Maxwell (2000) indicated that household food

availability is a function of food prices, characteristics of household demographics, and food tastes and preferences of the households. Factors such as unemployment, education of the household head, household size, income level of household, access to sanitation facilities and safe drinking water, and so on are the determinants of food insecurity in urban areas (Anand *et al* ., 2019; Belay, 2012; Endalew *et al*., 2015; Kaluski *et al.,* 2014; Mutiah and Istiqomah, 2017; Tadele, 2019; Tegegn, 2015).

According to Kennedy (2003), there are three fundamental differences in the components of food security between urban and rural areas. First, the availability of food in urban areas comes from production in rural and suburban areas and imports. The food provided in urban areas, either through national or international supply channels determines the food available for purchase by the public. Urban food supply systems can involve a complex distribution chain. Complex distribution chains involving wholesalers, secondary buyers, distributors, and vendors. On the one hand, these complex networks create jobs for residents of the city, but on the other hand, these increase the price paid by consumers. Therefore, the urban poor households are vulnerable to changes in prices for earnings, and cash reserves are limited.

Second, urban IDP households' access to food is divided into access and choice of food as well as access and food pattern. In access and choice of food, for people who live in urban areas, access to food depends on the ability of households to buy food. Kennedy (2003) showed that most career women have little time to prepare food and long distances between home and place of work spend a lot of time. The condition affects access and food patterns in urban Africa. Due to the fast-paced urban lifestyle, many urban consumers rely on fast food. Street food plays an important role in the food access strategies of the urban poor. The cost of traditional staple foods is often higher in urban areas than the cost of processed foods. It contributes to shifting food patterns observed in urban areas (Ruel and Garrett, 1999) in Kennedy (2003). People in urban areas consume more processed and prepared foods that in general contain more fat, sugar, salt, preservatives, and have less fiber and micronutrient content. Reasons for the shift towards processed food in urban areas are due to convenience, availability, and price. Third, the use of urban food can be measured by looking at the individuals' health status. The health status is influenced by access to services, i.e. primary health care, education, drinking water, sanitation systems, and general environmental

conditions. Food security conditions in urban environments are often the subject of attention because urban street food is often prepared in unhygienic conditions, and can carry disease outbreaks in food. Furthermore, Murage *et al* (2010) found out that food insecure households are likely to have old household heads. This is in line with the results of Gebre (2012) that the age of the household head negatively affects food security. The logic is that the younger are more productive than the older leading to the achievement of food security of the household.

2.3 Literature Gaps

Adequate information is available on food security status and coping strategies of the households as well as on food insecurity and its determinants in the urban areas (Anand *et al*., 2019; Birhane *et al.,* 2014; Tadele, 2019). However, the IDP households who have settled in Gelan town since 2018 were the population under study. But, limited information is available concerning their food security status, sources of livelihoods, and as well as on how they cope up with their new lifestyle and food insecurity in their new area.

2.4 Conceptual Framework

The empirical literature indicated that increased costs of food and non-food products, as well as poor purchasing power due to economic factors, are the major reason for food insecurity in urban areas (Birhane *et al.,* 2014; Tegegn, 2015). A household needs to have enough income all the time to purchase sufficient food at prevailing prices. Moreover, food utilization, health, and morbidity status are among the major reason for food insecurity (Kaluski *et al*., 2014; WFP, 2009). Similarly, variation in national, regional, or local availability of food can contribute to food insecurity. According to Tegegn (2015), the ability to achieve food security in a household is derived from food security factors such as human, material, and institutional resource bases of the households in the urban areas. In general, economic, social, and demographic factors such as educational and employment status, household size, saving, safety nets, and remittances could have impacted household food security specifically for IDPs residing in towns.

Furthermore, the IDPs often lose assets when they are forced to flee their homeland. According to Yigzaw and Abitew (2019), internal displacement disrupted the social intimacy, economically affected the IDPs and the host communities, led the IDPs into homelessness, brought economic

hardship that made them more vulnerable to psychological violence and led IDPs to death. They may also be unable to pursue their former work, leading to unemployment, underemployment or informal work, and a significant drop in income (IFRCRCS, 2019). According to WFP (2019), internal displacement leads to losses of livelihood of food insecurity as well as resulted in the high rate of acute malnutrition in Ethiopia. They also tend to have fewer opportunities to regain their livelihood activities (IOM, 2019). Thus, acute food shortages could lead them to chronic food shortages that in turn resulted in malnutrition. Ethiopia recorded the highest number of conflict-induced displacements (CID) worldwide, with 2.9 million IDPs in 2018 (Cazabat, 2020).

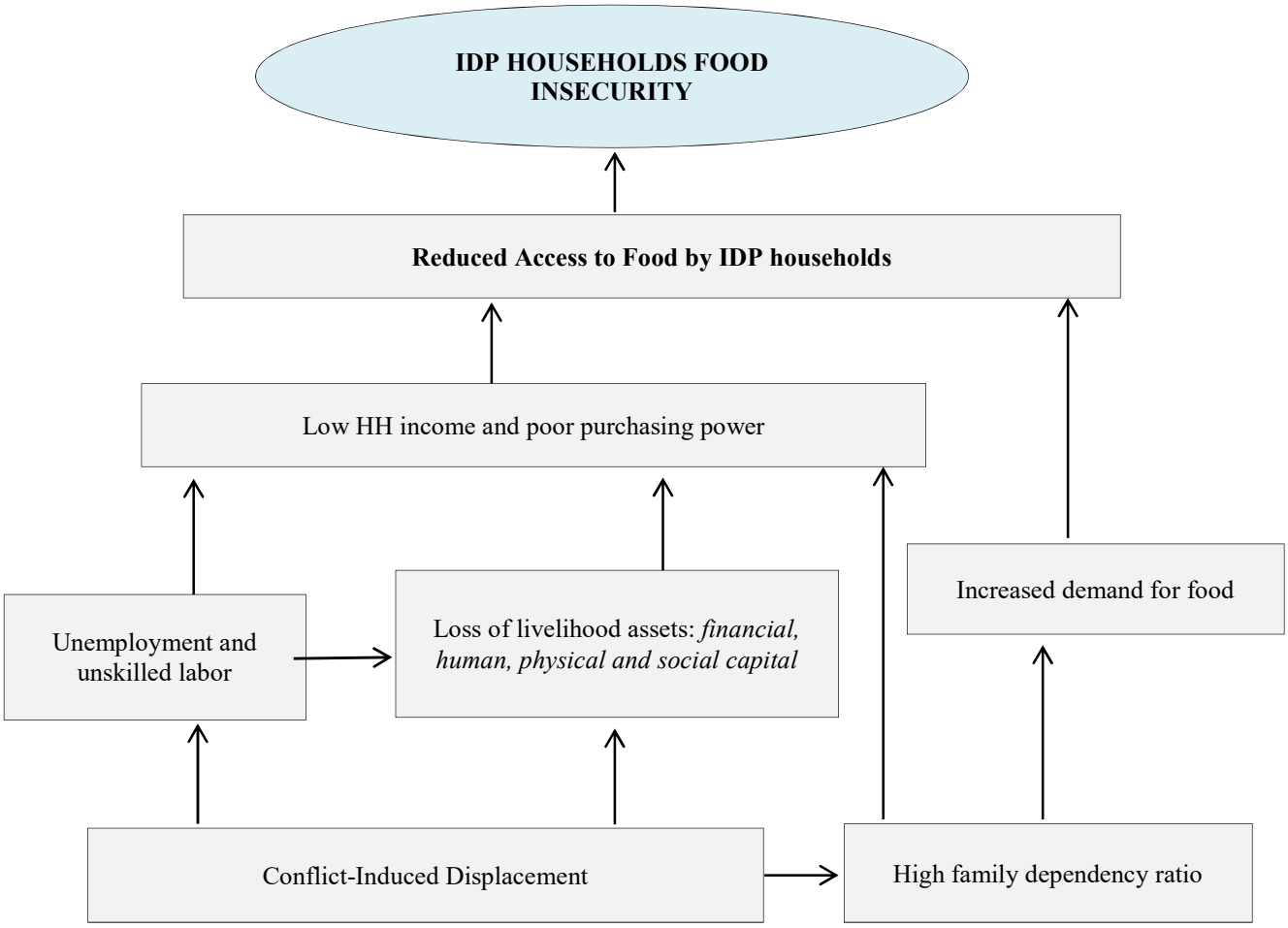

Figure 2.2 Conceptual framework of the study

Source: Modified based on literature, 2021.

CHAPTER III: DESCRIPTION OF THE STUDY AREA AND RESEARCH METHODS

This chapter described the location, climate and the socioeconomic characteristics of the study area as well as the research methodology. The sub-sections under research methodology included the employed research design and methodology, techniques for sample size determination, data source and methods for data collection, and data analysis techniques.

3.1 Description of the Study Area

3.1.1 Location and climate

The study was conducted in Gelan town of Oromia Regional State which is located at a distance of 25km from the capital Addis Ababa in the Southeastern outskirt. Gelan town was founded and got municipal status in 2006 and it is amongst the eight towns of the Finfinne Surrounding Oromia Special Zone (FSOSZ). The town is inhabitant by a total of 59,817 people. Currently, 783 IDP households (546 male and 237 female) with a total of 2,781 people live in Gelan town (OLSA, 2021). Geographically, Gelan town lies between 8°47'30"- 80°53'00"N latitudes and 38°47'00"-38°53'00"E longitudes whereas its average temperature is 18.5^{0}c and mean annual precipitation is 861mm (NMS, 2018). Its altitude is above 2,200m above sea level. The principal natural constraints for the physical expansion of the town are floods and steep

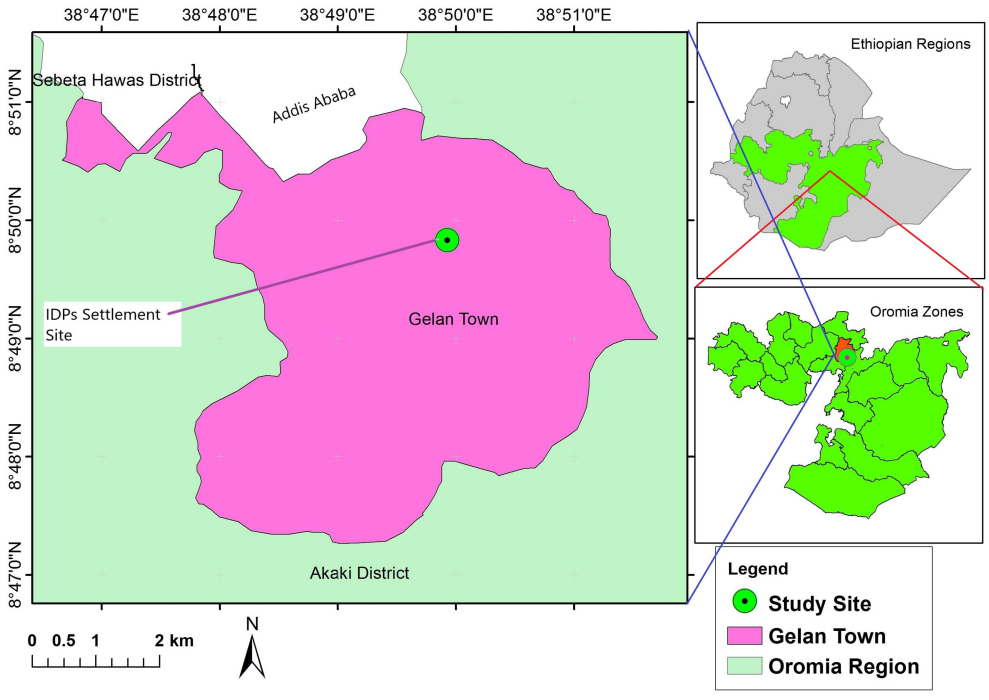

Figure 3. 1 Map of the study area- Gelan Town

slopes. The area usually experiences mono-modal rainfall patterns that stretch from mid-June to mid-September.

3.1.2 Socioeconomic profile

Gelan town is home to more than 250 manufacturing and storage centers, and it has economic linkages with the surrounding areas, towns, and Addis Ababa. The town gets grain products and labor from surrounding areas, natural resources (fuelwood, charcoal) from Dukem and Awash (rural area). The town gets agricultural inputs and farm implements from Adama, Bishoftu, and Addis Ababa. The area of Gelan town is 7,516 ha and is relatively compact in shape. The town is the groundwater catchment area of Akaki partially within the planning unit of the town. Intensive constructions taking place in the area are, however, believed to harm the groundwater recharge of the area from where water is supplied to the population of southern Addis Ababa. According to Legesse (2011), the analysis of Gelan town structure plan showed that the plan was implemented poorly and lacked plan evaluation, monitoring, and updating taskforce. As a result, irregular and irrational development, as well as incompatible land uses, is common along the Addis Ababa-Adama highway crossing the town. Mixed agriculture – in the form of farming of annual crops on small and fragmented areas of land and livestock rearing– is the dominant land use scheme around the town (ANRO, 2019). The dominant crops are teff, wheat, chickpea, and grass pea.

3.1.3 Justification for selection of the study area

Gelan is one of the towns targeted by the Oromia Regional Government for the resettlement of IDPs. These IDP households were displaced from Somali Region in of Eastern Ethiopia. In 2019, more than 700 households were settled by the regional government in Gelan town. The livelihoods of both the host community and the IDPs mainly depend on formal employment, self-employment, and casual wage-employment in the construction and manufacturing areas. However, since the town is recently established, the alternative business opportunities such as self-employment and trade are relatively limited and inaccessible to IDPs as compared to the other towns surrounding the capital such as Sebeta, Burayu, Lagatafo, and Sululta. As a result, according to the key informants from local government and personal observation, these IDP households face challenges to make livelihoods and lack adequate income to cover their basic household needs including

failure to purchase food and non-food commodities. Informal reports also indicated that some family members went back to their original place in the Eastern Ethiopia searching for informal job opportunities and trade. Therefore, with this background as well as a budget limitation and logistic reasons, Gelan town has been selected to undertake this study.

3.2 Research Methods and Materials

3.2.1 Research design and approach

A mix of descriptive and cross-sectional (survey) research designs was used in this study, involving both descriptive and exploratory research of inquiry. Similarly, mixed research approaches, namely quantitative and qualitative research were employed for this study to measure the food security status and collect contextual information on the displaced households. The qualitative research approach helped to meet the information obtained through the quantitative research.

3.2.2 Data type and sources

Both qualitative and quantitative data were collected. In-depth interviews and direct observations were the techniques employed in the survey to collect data. The IDP households, key informants from the Labor and Social Affairs Office of the town, the village leaders, community leaders, and other related sectors were the major sources of qualitative data. Similarly, qualitative information was sourced through focus group discussions (FGDs). From the study community, quantifiable data were obtained through discussion with a group of targeted people identified purposively from the study population. However, quantitative data were sourced from individual households through a structured questionnaire survey.

3.2.3 Sample size determination and sampling techniques

Both probability and non-probability sampling methods were employed. Thus, a multistage sampling technique was used for this study where initially Gelan town was purposively selected due to IDP settlement. Similarly, key informants such as government staff and IDP households (community leaders and other) were purposively selected to collect contextual information. Secondly, IDPs were considered to address the issue of food security status and coping strategies. Then at the third step, the sample households were selected using a simple random sampling technique. For this purpose, a list of the IDP households was obtained from the Gelan town's

Office of Labor and Social Affairs to establish a sampling frame for the population under study. To take a total sample relevant for the study, the simplified formula provided by Yamane (1967) was used to calculate the sample size;

$$n = \frac{N}{1 + N\,(e)^2} \quad = \quad \frac{783}{1 + 783\,(0.08)^2} \quad = \quad 142$$

Where: n = the sample size; N = the target population size; e = the level of precision (8percent). The required sample size was calculated using a 95 percent confidence level and a level of precision equal to 8 percent is recommended to obtain a sample size required, which represents a true population. Therefore, a total of 142 IDP households were considered for this study from a total population of 783 households currently living in Gelan town.

3.2.4 Data collection method and tools

Both primary and secondary data were collected from different sources to identify important variables that affect household food security. Secondary data was collected from published and unpublished sources related to the subject. A questionnaire survey, FGD, and KIIs were employed to collect the primary data. Furthermore, personal observations were undertaken in the study area. Data collection tools and techniques are indicated below:

Questionnaire survey: Data collectors were identified based on the previous experience and skill of Afan Oromo and trained for common understanding on the questionnaire. The questionnaire was prepared and tested before going for the actual data collection. With the input from pre-testing, the questions were revised. Thereafter, primary quantitative data were collected through scheduled household interviews using a structured questionnaire to ask the respective households directly about food security and related issues. This method of data collection is crucial to get firsthand information about food security status, determinants of household food security, and the range of coping strategies practiced by food insecure households. For this purpose, the questionnaire was prepared, pre-tested, and adjusted before the actual data collection.

Key Informant Interview: A total of 15 key informant interviews (KIIs) were undertaken to collect qualitative information on the contextual factors affecting or contributing to the food security status of the populations under study. The KIIs helped to collect information from a wide

range of people such as community leaders, relief providers, host community, and administrative town's office of social and workers affairs that have firsthand knowledge about the community.

Focus Group Discussions: The IDP community under study was homogenous so that only two Focus group discussions (FGDs) were conducted both with female and male households. The FGDs were facilitated with 10-12 purposively selected respondents.

3.2.5 Data Analysis

A. Food Security Analysis

It was noted that a single composite indicator could not work to catch the entire food security dimension. According to Ike *et al.* (2015), using HFIAS, CSI, and DDS indicators in combination can help to measure all four dimensions of food security from different angles, providing a deeper understanding of food security. Therefore, the three key indicators, HFIAS, CSI, and DDS were used to measure the status of food security in the study areas. The person within the household who has primary responsibility for preparing and serving meals was asked a series of questions regarding households' behavior on food access, dietary diversity, and how households are responding to food shortages.

i. Household Food Insecurity Access Scale

The Household food insecurity Access Scale (HFIAS) indicator focuses on the "access" aspect of food insecurity (Coates *et al.,* 2007). It is based on the occurrence of questions such as whether or not a specific condition is associated with the experience of food insecurity. The HFIAS score is a measure of the degree of food insecurity particularly access to food in the household in the past four weeks or 30 days. The HFIAS score ranks households from complete food secure (0 scores) to completely food insecure (27 scores) households based on a set of nine standardized questions. A higher HFIAS score is an indication of more food insecurity (inadequate access to food) that is experienced by the households. On the other hand, a lower HFIAS score stands for less food insecurity (adequate access to food) a household experienced. Similarly, the Household Food Insecurity Access Prevalence (HFIAP) was used to understand households' access to food. The HFIAP converts all households' ordinal measures into four food security categories such food secure, mildly food insecure, moderately food insecure, and severely food insecure. It does so in increasing order of severity and frequency of food-insecure occurrences (Coates *et al.,* 2007).

Thus, when the household at least responds positively to one of the eight items, then the household was determined to be food insecure otherwise food secure (see Table 3.1; Annex IV).

Table 3.1 Classification of the respondent households using HFIAS indicator

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	Sever 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)

ii. Household Dietary Diversity Score

The Household Dietary Diversity Score (HDDS) is a simple, rigorous, and straightforward technique of measuring and analyzing the access component of food security and dietary diversity. The HDDS as an indicator is developed by FANTA (Swindale and Bilinsky, 2006) that counts the number of different food groups consumed by the household over a certain period of time. The HDDS helps to know the economic capacity of a household to access a variety of foods and has become the most commonly used indicator to measure the economic access of households to food. The HDDS indicator is expressed as:

$$\text{HDDS}\ (0-12) = \sum (A + B + C + D + E + F + G + H + I + J + K + L)$$

The HDDS indicator is calculated using 12 food groups consumed by household members during the day and night time or over a recall period of the last 24 hours: (A) Cereals; (B) White tubers and roots; (C) Vegetables; (D) Fruits; (E) Meat; (F) Eggs; (G) Fish and other seafood; (H) Legumes, nuts, and seeds; (I) Milk and milk products; (J) Oils and fats; (K) Sweets; Spices; (L) Condiments and beverages. The value of this indicator ranges from 0 to 12. The values for 'A' to 'L' can be either '0' or '1'. Thus, this measure ranges from 0 to 12 per a respondent, with a higher number indicating a greater dietary diversity, indicating that intake of a greater variety of foods is closely linked to household food security.

iii. Coping strategy index

Coping Strategies Index (CSI) was employed to assess and identify the coping strategies of the household. The CSI is an indicator used to assess the extent to which households use harmful coping strategies when they do not have access to enough food. Based on households' best judgment of the situation, the rationale behind the CSI is that food insecure households adjust their behavior in the face of lack of food to ensure food security now and in the future (Maxwell, 1996; Maxwell *et al.,* 2003). In this study, the "context-specific" CSI was used since it is based on local contexts and helps to obtain detailed information about the food security situation (Maxwell, 2008).

Different coping strategies were identified to collect the data. For each coping strategy, the assigned 'weight' was multiplied by its frequency, receiving the score per each strategy. The total CSI score was received by summing up the scores of all assessed strategies. Then, the scores were divided into three categories: low (0-40), medium (41-80), and high (over 80) CSI Scores. A high score means extensive use of negative coping strategies and hence increased food insecurity (Maxwell, 2008). Finally, descriptive statistics were undertaken to address the food insecurity status of the households. For analysis of CSI per household, a means of scoring the relative frequency as well as a means of scoring weight is required. This can be summarized by the following formula:

$$CSI = \sum_{i=0}^{k} FiSi$$

Where: Fi = Frequency of the i^{th} coping mechanism took by a household in the past seven days

Si = is the severity weight attached to i^{th} coping mechanism, and

k = maximum number of coping strategies

A. Qualitative Data Analysis

Narrative analysis is a qualitative research approach conducted to analyze content from various sources, such as interviews of respondents, observations from the field, or surveys, focusing on using the stories people create and experiences shared by people (Smith, 2000). Qualitative data was generated from interviews, observations, and desk reviews. In this study, therefore, narrative analysis was the best method to analyze information collected from IDPs through FGD

facilitation, key informants as well as information from direct observations and desk reviews. The information was summarized by the content and thematic areas and reported. Finally, the qualitative information was cross-checked with that of the quantitative data.

B. Quantitative Data Analysis

I. Descriptive statistics

The collected data was entered, organized cleaned, and summarized for analysis. The two classes of parametric statistical tests such as descriptive and inferential statistics were employed to analyze the data using the Statistical Package for Social Sciences (SPSS) version 20 software. According to Walliman (2011), descriptive tests reveal the 'shape' of the data in the sense of how the values of a variable are distributed. Inferential tests suggest (i.e. infer) results from a sample about a population. Thus, the food security status of the sampled households was assessed using descriptive analysis. Descriptive statistics such as frequencies, percentages, mean and standard deviations were used to analyze socio-economic characteristics of study participants and to describe the determinants of food security. Finally, the findings were presented as found suitable in histograms, tables, and charts.

II. Inferential statistics

Several test distributions such as the Z-test, t-test (one-sample, independent-sample, and paired-sample t-tests), χ^2-test, and F-test are useful in presenting results of development research. The choice of method of the statistical test depends on data type, the scale of measurement, sample size, characteristics of the population that the sample came from, type of question to be answered, and several variables as well as parametric versus non-parametric hypothesis testing (Bryman, 2012). The parametric tests were based on the mean and standard deviation and they are essentially tied to the normal frequency distribution (Walliman, 2011). The normal **Z-**test, student's t-test, and Fisher's F-test (ANOVA) are the most commonly used parametric tests. But, non-parametric statistics such as the chi-square (X^2) test, too, were used for the analysis of the variables which were neither interval nor ratio scale.

Therefore, the X^2 test was used to examine the relationship between the categorical (nominal and ordinal) variables (sex and education of the household head and access to credit and social services) and the food security status. Similarly, an independent t-test was used to test the

significance level of the explanatory variables such as the age of the household head, family size, and dependency ratio of the households, monthly income of the household, remittances earned, and food aid received on dependent variable which is food security status of the IDP households in the study area.

To identify determinants of household food security (a dependent variable for the analysis), binary logistic regression was performed. The data generated using the HFIAS indicator were considered for binary logistic regression analysis to identify factors associated with food security status. Logistic regression is a commonly used model for the analysis of binary or dichotomous variables. Models, which include a 'yes' or 'no' type dependent variables, are called dichotomous or dummy variable regression models. Such models approximate the mathematical relationships between explanatory variables or independent and the dependent variable that is always assigned qualitative response variables (Gujarati, 1995). Food security status was measured using a bid-value of one or zero, where one represents food secure and zero represents food insecure. Thus, household food security was a dependent or explanatory variable for this binary logistic regression model. Thus, in this study, the food security status of the households could have the probability of being either food secure or food insecure. According to Hosmer and Lemshew (1989) cited in Ibrahim (2016), a logistic distribution has got an advantage over others in the analysis of dichotomous outcome variables for two primary reasons: it is a flexible and easily used function. According to Gujarati (2004) the logistic distribution function for determining factors in the food security status of the households can be mathematically indicated as:

$$Li = \ln[p/(1-p)] = \beta_o + \beta_1 X_1 + \beta_2 X_2 + \ldots\ldots + \beta_n X_n + U_i \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 1$$

Where: ln=Natural logarithm (2.718),

P= Probability of being food secure,

1-p=Probability of being food insecure,

B_o=Coefficients of explanatory variables,

X_n = Predictor variables,

Ui= Error term

Where: Z_i = is a function of i explanatory variables (X_i) and is expressed as:

$$Zi = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \ldots\ldots + \beta_n X_n \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 2$$

If the disturbance term U_i is taken into account, the logistic regression model becomes

$$Z_i = \beta_o + \sum \beta_i X_i + U_i \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 3$$

Where β_o is the intercept and βi is the slopes parameter in the model which is estimated using the maximum likelihood method. The slope tells how the log-odds in favor of food secure of the household change as independent variables change by a unit.

C. Description of Variables

i. Dependent variable

The household food security status was the dependent variable for logit analysis. In the model, this variable is a dichotomous dependent variable that takes a value of 1 if the household is food secure and 0 if the household is food insecure. Thus, food insecurity status was determined from HFIAS measurements where those households who respond 'no' to all nine occurrence questions in the HFIAS questionnaire were food secured while the others who respond to at least one of the items 'yes' were considered to be food insecure.

ii. Independent variables

The key independent variables that were expected to affect household food insecurity status in the study area are indicated below (see Table 4.1).

Sex of the household head: Female headed households are labor-poor since they participate both in productive and domestic activities. Thus, they were expected to be food insecure and have a positive relationship with food insecurity. Thus, it is a dummy variable taking a value of 1 if the household head is female and 0 if male.

Age of the head: There is more probability of the household being food insecure as the age of the household increases. This has an impact on the economic activities of the households. Thus, food insecurity and the age of the household head are positively correlated (Tadele, 2019). Age is a continuous variable.

Education of the household head: Educational status of the household head is associated with food security status (Birhane *et al.,* 2014). Education was expected to have an impact on employment that in turn positively influences the economic status of the household and food

security. Therefore, it was hypothesized that the education of the household head has a negative relationship with food insecurity.

Household size: This stands for the household members who live together in the same house and are economically dependent on each other. Households with larger household sizes or economically non-active family members could be a burden to the households (Birhane *et al.,* 2014). Thus, household size was expected to have a positive relationship with household food insecurity status.

Dependency ratio: It refers to the ratio of children under 15 and those of adults above 64 in the family. The active labor force (i.e. age 15-64) was under pressure to support these dependents as their number increase, leading to a share of livelihood resources. Dependency ratio and food insecurity have a positive relationship (Abebaw, 2003). Thus, the hypothesis was that a household with large economically non-active household members is expected to be more food insecure than those with less burden of dependents.

Employment: The employment status of the household head is among the factors associated with economic and food security status in urban areas (Birhane *et al.,* 2014). Therefore, employment opportunities could have a negative influence on the food insecurity status of the households.

Monthly income of the household: The higher the monthly income per adult equivalent the lesser the likelihood of household food insecurity; more income means improved access to food resources by the households in the urban areas (Birhane *et al.,* 2014). Thus, the higher income could be hypothesized to be positively related to the food security status of the households. The total amount of monthly income per adult equivalent was computed in Birr from a different source

Food aid: Access to adequate food aid regularly could help the households improve their food security status. Therefore, access to food aid was expected to have a negative relationship with food insecurity of the households.

Remittances: It is expected that the IDPs may receive supports from their relative back home or abroad. Thus, having economic support from relatives was expected to negatively relate to the food insecurity status of the households.

Access to credit: It is expected that households with access to financial resources could have better food security status. Thus, it was hypothesized that access to credit could have a negative relationship with food insecurity.

Table 3.2 Summary of variables measurement and hypothesis

Variable	Variable type	Variable definition and measurement	Hypothesis
Food insecurity status	Dummy	1 if the household is food secure; 0 otherwise	
Sex of HH Head	Dummy	Dummy Male = 1 Female = 0	+ ve
Family size in AE	Continuous	Number	+ve
Age of HH Head	Continuous	Years	+ve
Dependency ratio	Continuous	The ratio of dependents to active members	+ve
Education of HH Head	Continuous	Year of schooling	-ve
Monthly HH income	Continuous	Monthly income in Birr	-ve
Food aid	Continuous	Total food aid received in Birr	-ve
Remittance	Continuous	Income from relatives in Birr	-ve
Employment	Dummy	Yes =1, No=0	-ve
Access to credit	Dummy	Yes =1, No=0	-ve

CHAPTER IV: RESULTS AND DISCUSSION

This chapter presents the results that were generated from the study on internally displaced people (IDP) in Gelan town. Both qualitative and quantitative data collected from IDP households, key informants and group discussion participants were linked, presented and discussed. In this study, data generated using three important food measurement tools such as household food insecurity access scale, household dietary diversity score (dietary recall) and coping strategy index score were used. Thus, this chapter was divided and presented in four major sections: (1) demographic and socioeconomic status of the households such as sex, age and education of the household head, household size, dependency ratio, employment, monthly income of the household, food aid, remittance and access to credit, (2) food security status of the IDP households, (3) factors associated with food insecurity, and (4) the determinants of food insecurity among the IDP households in Gelan town.

4.1 Demographic and Socioeconomic Status of the IDP Households

4.1.1 Demographic characteristics of the households

A demographic characteristic of the IDP households is indicated below (Table 4.1; Figure 4.1). On average, the age of the household head was 43.1 years. The mean household size was 5.6 people for the IDP households under study. About 40 percent of the household heads did not have formal education (Figure 1). From the total participants of the study, about 77.5.9 percent were married, 14.1 percent were widowed and 8.5 percent were divorced. According to the FGD participants, conflict was the major reason for being widowed where many of them have lost their family members in the conflict.

Table 4.1 Household size and age of the household head

Variable	N	Minimum	Maximum	Mean	Std. Deviation
Household size	142	2.0	13.0	5.5	1.81
Age of household head (year)	142	23.0	90.0	43.1	12.27

Source: Own Survey, 2021.

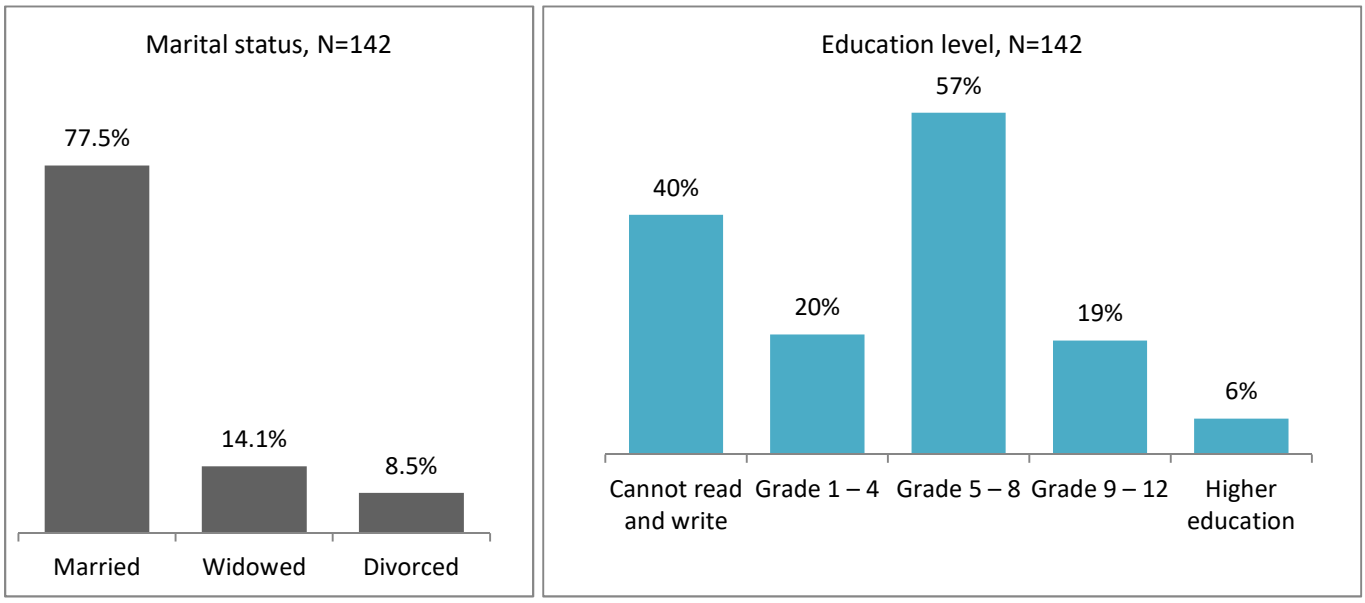

Figure 4.1 Marital status and educational level of the study participants

Source: Own Survey, 2021.

4.1.2 Livelihoods of the households

The result indicated that the mean monthly income of the IDP households was ETB 14,313.35 before displacement in their original place, Somali National Regional State (Table 4.2). Before displacement, self-employment (81.7%) was the major source of livelihood for the households followed by wage labor (14.1%) in Somali Region (Figure 4.2). According to the KIIs and FGD participants, the IDPs have already lost their livelihoods and it was challenging to adapt to the new living style and system in Gelan town. The study indicated that 97.9 percent of the households have lost their livelihood assets due to conflict induced displacement (see Figure 4.2). Similarly, about 4.9 percent of the respondent had lost their family members while 10.6 percent of the households reported the injury of their family member during the conflict. As a result of conflict, in general, the households have lost human, financial, and social capitals that negatively contributed to the livelihood status of the IDP households in Gelan town.

Table 4.2 Monthly income level of the IDP households in their original place in Somali Region

Income category (ETB)	Frequency	Percent	Mean	Std. Deviation	Minimum	Maximum
Low income (≤ 7,500)	48	33.8	5,206.17	1531.09	1,000	7,500
Medium income (7,501 - 14,999)	38	26.8	10.421.05	1670.60	8,000	13,000
High income (≥ 15,000)	56	39.4	24,760.71	16234.17	15,000	90,000
Total	142	100.0	14,313.35	13415.80	1,000	90,000

Note: ETB 7,500 was the first tercile or cut-off point while ETB 15,000 was the cut point for the third tercile

Source: Own Survey, 2021.

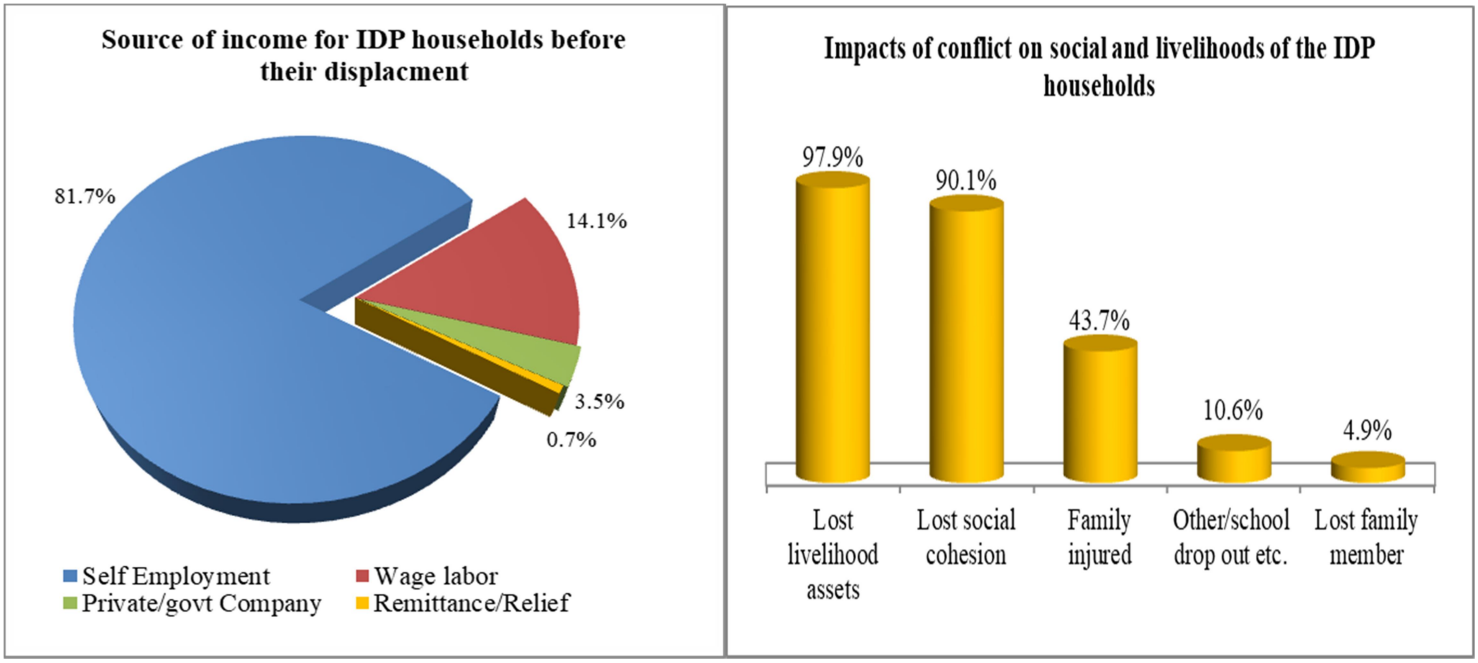

Figure 4.2 Source of income before the conflict that resulted in displacement and impact of conflict on IDP households

Source: Own Survey, 2021.

The study confirmed that wage labor and self-employment remain the dominant sources of livelihoods and income in Gelan town (Figure 4.3). In addition, employment opportunities in the private companies, remittance, temporary food aid, and others enabled the IDP households to generate income. Specifically, about 53.7 percent of the households depend on wage labor while

35.7 percent had generated income from self-employment (see Figure 4.3). The study confirmed that, on average, the monthly income was ETB 1,978.66 per household. The IDP households particularly the women involved in petty trade where they were forced to abandon street-side trading.

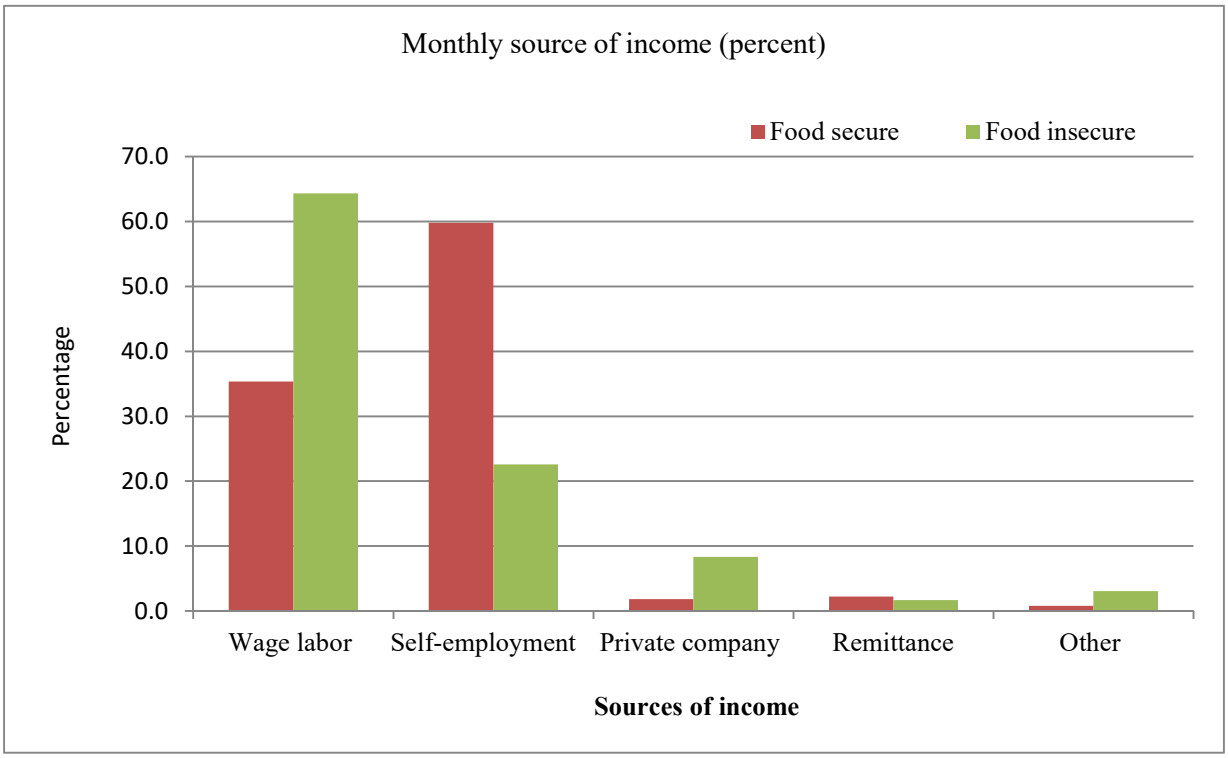

Figure 4.3 Monthly source of income for IDP households by food security status in Gelan town

Source: Own Survey, 2021.

4.2 Food Security Status of the IDP Households

Food access and access stability of households are considered by HFIAS to assess the status of households' food security. The average HFIAS score was calculated to be 14.8 with minimum and maximum value of 0 and 27, respectively. About 5.6 percent of the respondents have a score of zero that is they never experienced any anxiety, or didn't alter the quality and quantity of their diet. To the contrary, 1.4 percent of the households responded to practice all the nine questions of the HFIAS indicator.

Table 4.3 indicates the behavior of the households concerning access to food at various levels. The finding of the current study confirmed that more than 95 percent of the households had experienced at least one of the eight indicators of food insecurity experience scale model with varying degrees. As the study participants were urban dwellers, income was their major source for food access. Therefore, about 95 percent of the households reported that they worried about not having enough food because of a lack of money or other resources to purchase food. Similarly, 80 percent of them reported that they were not in a position to consume food items of their preferences. Finally, about 25 percent of the households reported going hungry overnight because of lack of food while 6 percent of them spent both day and night without eating.

Table 4.3 Household response to HFIAS questions in the past four weeks due to lack of money or other resources

Questions	**Yes response**		**Frequency in a month**		
	N	**Percentage**	**1-2 times**	**3-10 times**	**More than 10 times**
Q1: Worry about food	136	95.8	13.4	5.6	75.4
Q2: Unable to eat preferred foods	115	81.0	0	4.9	75.4
Q3: Eat just a few kinds of foods	114	80.3	0	5.6	74.6
Q4: Eat foods they really do not want eat	114	80.3	6.3	2.1	71.8
Q5: Reduce amount of meal	99	69.7	12.0	25.4	32.4
Q6: Reduce frequency of meal	99	69.7	0	15.5	54.2
Q7: No food of any kind in the household	63	44.4	3.5	12.7	28.2
Q8: Go to sleep hungry	37	26.1	0.7	21.8	3.5
Q9: Go a whole day and night without eating	10	7	4.2	1.4	1.4

Source: Own Survey, 2021.

The sample IDP households were classified into food secure and food insecure groups based data generated using household food insecurity access scale (HFIAS) indicator from the HFIAS questionnaire items. Thus, the households' food security status was categorized into mild, moderate, or severe food insecure based on the Household Food Insecurity Experience Scale

(FIES). The finding indicated that about 11.3 percent, 43percent, and 23percent of the households were mildly food insecure, moderately food insecure, and severely food insecure, respectively (Figure 4.3). In general, about 82percent of the households are food insecure while 18 percent of the households are food secure (see Figure 4.4). Therefore, the entire IDP community currently addressed by this study could be classified as food insecure since significantly ($P<0.01$) majority of them were found to be food insecure.

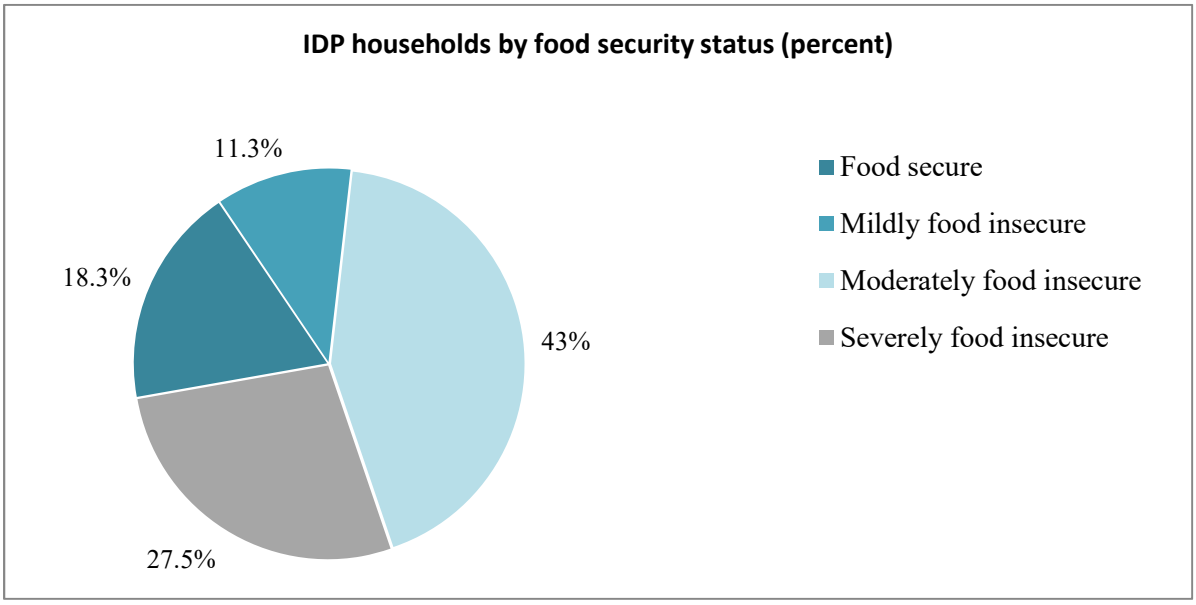

Figure 4.4 Food security status of the IDP households in Gelan town

Source: Own Survey, 2021.

4.3 Factors Associated with Food Insecurity

The household characteristics such as sex, age, and educational status of the household head, family size, and dependency ratio as well as households' monthly income, remittance, access to credit, and food aid were compared to see the significant variation between food secure and food insecure households.

A. Sex of the household head

The study indicated that male headed households accounted for 75.4 percent while female headed households accounted for 24.6 percent of the respondents. The proportion of the female headed households accounted for 71.6 percent in food insecure groups while it was 28.4 percent for male-

headed households. In contrast, male headed households in food secure group were 92.3 percent while it was only 7.7 percent in female-headed households. The variation in proportion between food secure and food insecure households was significant due to sex differences among the household heads (Table 4.4). Therefore, the probability for the male headed households to be food secure is higher as compared to female headed households. The female headed households could have lesser time available to engage in productive livelihood activities since they are also in charge of domestic livelihood activities. The FGD participants also indicated that the males usually temporarily move to other areas searching for jobs while leaving the family back to the wives. Therefore, male headed households could generate more income with better access to foods. In line with this, Ibrahim (2016) also reported that male headed households were significantly better ($P<0.01$) in food security status as compared to female headed households.

Table 4.4 Food security status by sex of the household head

Sex of household head	Food secure (N=26)	Food insecure (N=166)	Total (N=142)	χ^2 value
	Percent	Percent	Percent	
Male	92.3	71.6	75.4	
Female	7.7	28.4	24.6	36.51***
Total	100	100	100	

Note: *** Significant at1% probability level

Source: Own Survey, 2021.

B. Age of the household heads

The relationship between the age of the household head and household food security status is described in Table 4.5. The average age of the study household heads was 43.1 years (SD=12.74). The average age of food insecure household heads was 45.7 years whereas it was 32.8 years for food secure household heads. On average, the study confirmed that food secure household heads were younger (32.8 years) than food insecure households (45.7 years). Aged households are more food insecure and less productive as compared to the younger household heads. The FGD participants also indicated that the younger households involve in various income-generating activities such as wage labor where they can work more hours than the oldest age. Thus, younger households could be more productive and able to engage in alternative livelihood activities and

generate income for their households to purchase adequate food as compared to older households. Specifically, about 13.8 percent of the food insecure household heads were between 51 and 64 years of age while none of the households from food secure groups fall under this age category (Table 4.5). Besides, above 10percent of the food, insecure households were above 64 years of age. In contrast, about 46percent of the food secure households were between 18 and 30 years of age whereas only less than 3percent of food insecure households had age under the same category. In this study, the age of the household had a significant ($P<0.001$) effect on food security at the household level. Therefore, the age of the household head is negatively associated with household food security. In line with this, Gebre (2012) also reported that the age of the household head negatively affects food security.

Table 4.5 Food security status by age groups of household heads

Age of the household head (year)	Food secure	Food insecure	Total
	Percent	Percent	Percent
18-30	46.2	2.6	31.7
31-50	53.8	73.3	56.3
51-64	0.0	13.8	6.3
Above 64	0.0	10.3	5.6
Mean age	32.8	45.7	43.09
Std. Deviation	6.022	12.085	12.27
t value			5.281***

Note: *** significant at 1% probability level

Source: Own Survey, 2021.

C. Household size

The study showed that food secure IDP households had less family size than food insecure households. The food security status was significantly ($P<0.001$) affected by the household size with the negative association between household size and household food security. The mean household size was 4.9 for a food secure and 5.7 for food insecure households (Table 4.6). Household size is categorized into small household members (≤4 people), moderate (5-6 members) and big family members (≥ 7 people) to assess the trend. This finding indicated that households with a fewer number of family members might have a better chance to become food

secure than those with many members. In other words, IDP households with bigger family size are more food insecure particularly when the unproductive family members are bigger in a household, creating more pressure on consumption than contribution to household income. Household size can be an indicator of food security since it determines the amount and type of household food consumption. Similarly, several studies (Gebre, 2012; January, 2014; *Murage et al.*, 2010) reported that household size and household food security status are negatively related to each other.

Table 4.6 Food security status by the family size of IDP households

Household size	Food Secure (N=26)	Food Insecure (N=116)	Total (N=142)
	percent	percent	percent
Small (≤4)	46.2	19.8	24.6
Moderate (5-6)	42.3	52.6	50.7
Big (≥7)	11.5	27.6	24.6
Mean	4.9	5.7	5.5
Std. Deviation	1.479	1.848	1.791
t-value			2.075**

Note: ** significant at 5% probability level

Source: Own Survey (2021)

D. Dependency ratio

Dependency ratio is the proportion of the total number of too young (less than 15) and too old (greater than 64) members to the total number of active age groups (15-64). Therefore, dependency ratio was an important factor to have an impact on food security status of the IDP households. Table 4.6 shows the relationship of dependency ratio with the food security status of the IDP households.

On average, the dependency ratio of the study participants was 1.63 (SD=1.135) with a minimum of 0.0 and a maximum of 7 people. The mean dependency ratio was 1.10 (SD=0.501) for a food secure households and 1.75 (SD=1.203) for food insecure households (Table 4.7). The study confirmed that the dependency ratio had a significant (P<0.001) impact on the food security status of the IDP households. Moreover, it was found that the dependency ratio had a negative relationship with the household food security status. In other words, a high dependency ratio is

associated with food insecurity, indicating a high dependency burden to achieve food security at the household level. The FGD participants also explained that some of the households had lost their male household head to conflicts, creating burden on the mother to feed her children. In agreement with this, Ibrahim (2016) indicated that the dependency ratio was significantly higher (P<0.01) in food insecure households.

Table 4.7 Food security status by dependency ratio of households

	Food security status	Frequency	Mean	Std. Deviation	t-value
Dependency ratio	Food insecure	116	1.75	1.203	-2.654***
	Food secure	26	1.10	0.501	

Note: * Significant at 1% probability level

Source: Own Survey, 2021.

E. Education of household head

Education level of the household heads was identified to have an impact on food security of the households. The relationship between the education of household head and household food security is indicated in Table 4.8. In this study, the education level of the household head determines the food security status of households with higher education levels providing more opportunities to involve in various business opportunities and skilled labor than the illiterate households. That means household heads with low education levels are more likely to be in a state of food shortage, and vice versa. Uneducated household heads may have less opportunity to work as skilled labor, rather worked as daily laborers which are seasonal. According to key informants, educated households had managed to employ themselves either in the town or in the capital specifically involving in trading activities, mainly due to the capacity to fit into different systems, higher access to information and communication skills in the urban areas. Thus, this study confirmed that education significantly (P<0. 001) contributed to food security. Similarly, Mohammad *et al.* (2010), Gebre (2012), and Chinnakali *et al.* (2014) reported a positive relationship between education and household food security.

Table 4.8 Education of household head and household food security

Education of household head	Food Secure (N=26)	Food Insecure (N=166)	Total (N=142)
	percent	percent	percent
Do not read and write	7.7	33.6	28.9
Grade 1-4	11.5	13.8	13.4
Grade 5-8	53.8	37.1	40.1
Grade 9-10	15.4	12.9	13.4
Higher education	11.5	2.6	4.2
Total	100	100	100
Mean	3.7	8.0	4.485
Std. Deviation	4.01	3.56	3.99
t-value			-5.444***

Note: *** Significant at 1% probability level

Source: Own Survey, 2021.

F. Household income

The level of the household income is the major factor influencing the food security status of the households. The IDP households in the urban areas need to have the financial capacity to purchase food and non-food items at required quantity and quality. These IDP households, however, have lost their livelihood assets such as financial, human, physical and social capital that helped them to generate adequate income for household feeding. In this study, the mean monthly household income was ETB 2,066.66 while it was ETB 3,719.46 and 1,696.21 for food secure and food insecure households, respectively. The study showed that there was a positive relationship between household income and food security, indicating that households with higher income could have more chances to achieve food security. Thus, monthly household income had a significant impact on the status of household food security (Table 4.9). In other words, the higher the household income, the more likely for the households to purchase foods of adequate quantity and quality. Moreover, wage labor was the major source of income for food insecure households while it was self-employment for food secure households (Figure 4.8) Therefore, for urban households, income has a direct relationship with food consumption at the household level whereby those households with higher income levels could have a diverse recipe of nutritious and quality food. In contrast, those households with low income could only purchase limited, less nutritious, and

cheaper foodstuff. Similarly, Anand *et al*. (2019) and Tadele (2019) reported that lower monthly income (in association with food price inflations), and increased costs of living contributed to food insecurity in urban areas.

Table 4.9 Food security status by monthly household income

Household income (ETB)	Food secure (N=26) percent	Food insecure (N=116) percent	Total (N=142) percent
Low income (≤ 1, 240)	15.4	37.9	33.8
Medium income (1,241 – 2,249)	26.9	34.5	33.1
Higher income (≥ 2,250)	57.7	27.6	33.1
Mean	3,719.46	1,696.21	2,066.66
Std. Deviation	3,224.93	1,060.27	1,837.80
t-value			5.592***

Note: *** significant at 1% level; ETB 1,240 is the first tercile while ETB 2,250 is the third tercile

Source: Own Survey, 2021.

G. Remittance

Remittances refer to economic support from relatives in terms of money sent to the households. As these IDP households lived in Somali National Regional State, they have come from communities that have developed a culture of helping each other. The FGD participants indicated that family members provide support to their decent families specifically to the displaced households. However, the result indicated that only less than 30percent of the households had received remittance in a year. On average, the remittance of the IDP household was ETB 873.59, while it was ETB 1,063.46 for food secure households and ETB 831.03 for food insecure households (Table 4.10). The variation in remittance received between food secure and food insecure households was, however, statistically insignificant (P>0.10).

Table 4.10 Food Security Status by remittance earned of HHs

Remittance received (ETB)	Food Secure (N-26)	Food Insecure (N=116)	Total (N=142)
	Percent	Percent	Percent
Did not receive	57.7	72.4	69.7
Lower (≤ 1,300)	15.4	9.5	10.6
Medium 1,301 – 2,999	19.2	5.2	7.7
Higher (≥ 3,000)	11.5	12.9	12.7
Mean (ETB)	1,063.46	831.03	873.59
Std. Deviation	1,936.26	1,845.11	1,857.271
t-value			-0.575^{ns}

ns=insignificant at 10%; ETB 1,300 is the lower or first tercile while ETB 3,000 is the third tercile value

Source: Own Survey, 2021.

H. Food aid

According to the key informants, relief support was provided to the IDP communities by the government for a couple of years before it was shortly stopped a year ago. During data collection, it was observed that relief aid, organized by some individuals living in Addis Ababa City was provided to each IDP household. According to the key informants, regardless of family size and poverty level, each household was provided with 34kg of rice, 9-10 of wheat flour, and 1 kg of spaghetti or macaroni as well as 8-9 kg of termer in two cycles for the sake of Ramadan event. The yearly food aid received was estimated to be ETB 203.70 per household (Table 4.11). Therefore food aid did not have a significant (P>0.10) contribution to the variation between food secure and food insecure households. Thus, since food aid support provided by the government was stopped, its contribution to food security improvement of the IDP households' was insignificant.

Table 4.11 Monthly food aid provided by the privates sectors to the IDP community in Gelan town during the assessment period on irregular basis

Food Security Status	Rice (kg)	Wheat flour (kg)	Cooking oil (lit)	Lentil (kg)	Macaroni/ spaghetti (kg)	Temer (kg)	Yearly estimated food aid per HH (ETB)
Food Secure HHs	34.62	10.00	2.92	1.00	1.00	9.00	213.08
Food Insecure HHs	34.48	9.83	2.97	0.98	1.03	8.84	201.60
Total	34.51	9.86	2.96	0.99	1.02	8.87	203.70

Source: Own Survey, 2021.

I. Access to credit

Access to credit can create an opportunity for IDPs to involve in diversified business opportunities that generate revenue for households. But, both the FGD participants and key informants explained that the IDP households could not have access to formal credit sources such as microfinance institutions (MFI). This is because, immediately after resettlement in Gelan town, the IDPs were organized as micro and small enterprises (MSE) of five people and provided with loan amounted to ETB 100,000 per group. A number of MSEs were established and a business plan was prepared for each group to engage them in various income-generating activities. Later on, however, they people were allowed to share the money among the group members with each receiving ETB 20,000 to do a business at individual level. Furthermore, they were not supported and their status was not monitored that resulted in mismanagement of the previous loans. Currently, therefore, majority of the IDP households were denied access to credit from MFIs. As a result, informal sources were the major loan provider for the IDP households in Gelan town. The study indicated that informal sources such as relatives, friends, and neighborhood were the dominant loan provider to the study participants in the last year in the area.

From a total of 142 study participants, about 71.8 percent of the households confirmed to had access to credit sources (Table 4.12). The result indicated that/ food secure households had significantly higher ($P<0.01$) access to financial sources than food insecure households. This implies that access to credit could help the households to participate in various business opportunities that in turn help to increase access to food resources. On average, the food secure households received ETB 2,861.54 while the food insecure household took ETB 3,177.89 during the last 12 months (Table 4.13), and the variation in loan size was insignificant ($P>0.10$).

Table 4.12 Households access to credit by food security status

Access to credit	Food secure	Food insecure	Total	χ2value
	percent	percent	percent	
No access to credit	23.1	29.3	28.2	27.07***
Access to credit	76.9	70.7	71.8	

Note: ***=significant at 1percent probability level

Source: Own Survey, 2021.

Table 4.13 Loan size received by the households during the last 12 month

	Food security status	N	Mean	Std. Deviation	T
Loan size received	Food insecure	116	3,177.89	3,902.81	0.389^{ns}
	Food secure	26	2,861.54	2,918.64	

Note: ns= insignificant at % probability level

Source: Own Survey, 2021.

J. Employment opportunity

The IDP households had lost their livelihoods since displaced from their job- either from self-employment or wage employment due to conflict. Thus, they started another way of life in their recent resettlement area either from self-employment (trading activities) or seasonal and temporary wage labor or permanent employment in private companies to earn income to live on. According to the FGD participants, wage labor was available for few days a month for the majority of the people even though it was the dominant source of income for many people in the area. The result showed that 3.8 percent of the food secures and 22.4 percent of the food insecure households did not have employment opportunities including wage labor during the study period (see Table 4.14). Thus, the rate of employment opportunities was significantly higher ($P<0.01$) for food secure households.

Table 4.14 Employment by food security status of the households

Food security status	Employment Status		$\chi 2$ value
	Unemployed (percent)	Employed (percent)	
Food secure	3.8	96.2	
Food insecure	22.4	77.6	54.535^{***}
Overall	19	81	

Note: ***=significant at 1% probability level

Source: Own Survey, 2021.

K. Access to service and other support

The result of the study showed that more than 95percent of the households had access to social services such as medication, education, etc., and various supports (Table 4.15). However, about 4

percent of the respondents indicated that they did not have access to social services and hence did not get any support. The food secure households had significantly higher (P<0.01) access to social services.

Table 4.15 Access to the social services by the households

Food security status	Access to social services		χ2value
	No access (percent)	With access (percent)	
Food secure	3.8	96.2	
Food insecure	4.3	95.7	119.014***
Overall	4.2	95.8	

Note: ***=significant at 1% probability level

Source: Own Survey, 2021.

4.4 Determinants of Food Insecurity

Demographic and socioeconomic factors such as sex and age of the household head, dependency ratio, household income, education level of the household head, employment status, remittance, and access to credit were among the factors that were expected to determine the food security status of the IDP households. In this study, binary logistic regression was undertaken for modeling a predictive relationship between independent variables and a binary dependent variable. This model was used to see the relative influence of household's demographic, socio-economic, human capital, and remittance on food security status. The Hosmer and Lemeshow (H&L) tests were undertaken to test the goodness of fit. The non-significant test result (χ2 (8) = 6.267, P = 0.617) indicates that the model displays a good fit to the data (see Table 4.15). Furthermore, the Log likelihood ratio (LR) test shows the result of Cox & Snell R Square (R^2= 0.411) and Nagelkerke R Square (Psuedo R^2=.669). Thus, the Pseudo R^2 of the model was 66.9percent. This indicates that 66.9 percent of the variation of household food security level can be predicted from sex, age, and educational level of the household head, dependency ratio, household income, employment status, remittance, and access to credit, while the remaining 33.1 percent is explained by other variables not included in the model.

Table 4.16 shows estimates of the parameters of the variables expected to determine the food security of the IDP households. From the total of eight explanatory variables included in the model, three variables namely dependency ratio (P<0.01), education of the household head (P<0.05), and household income (P<0.01) were found to be statistically significant impacting the food security status of the IDP households. The remaining five explanatory variables, namely sex and age of the household head, remittance, employment, and access to credit were found to be statistically insignificant. In line with this, Birhane *et al.,* (2014) and Tegegn (2015) indicated that increased costs of food and non-food products, as well as poor purchasing power (lower household income) due to economic factors, were the major reason for food insecurity in urban areas.

Table 4.16 Maximum likelihood estimates of the binary logistic model

Variables in the Equation	Coefficient (B)	Standard Error	Wald	Df	Sig.	Odds Ratio
Sex of household head	1.554	1.101	1.993	1	.158	4.732
Age of household head	-.062	.057	1.181	1	.277	.940
Education level of head	.225	.106	4.512	1	.034	1.252**
Dependency ratio	-1.201	.358	11.242	1	.001	.301***
Employment	.391	1.222	.102	1	.749	1.478
Monthly income	.001	.000	11.614	1	.001	1.001***
Remittance	.623	.792	.618	1	.432	1.864
Access to credit	.398	.855	.217	1	.642	1.489
Constant	-2.301	2.471	.867	1	.352	.100
H&L Test Chi-square (8)						.617
Log likelihood						60.063
Cox & Snell R Square						.411
Pseudo R Square						.669

*** and *** significant at 5 and % probability level*

Source: Own Survey, 2021.

4.4.1 Analysis of the significant explanatory variables

I. Dependency ratio

The result from correlation analysis showed that household size and dependency ratio were highly correlated. However, the dependency ratio would be more determinants of food insecurity as

compared to the general household size. Therefore, the dependency ratio was considered while the household size was excluded from the analysis.

The study confirmed that dependence ratio and food security have an inverse relationship. The probability of becoming food secure is higher for households with productive household members than households with unproductive members. Other factors being constant, the odds ratio of 0.301 indicated that the odds ratio of being food secure decreased by a factor of 0.301 as the dependent age group (less than 15 and above 64 years) increases by one unit while the other variables remaining constant. In other words, for every one unit decrease of dependency ratio, the odds of food security status increase by 69.9 percent. This implies that those households with many dependent family members could be food insecure because of the high dependency burden. This shows that those IDP households with large economically non-active members tend to be more food insecure than those households with economically active household members. Household size specifically the dependency ratio had a significant role in determining the probability of a household's food security status. This finding is in agreement with several other reports (Tesfaye, 2005; Yilma, 2005; Ayalneh, 2009; Gebre, 2012; Ibrahim, 2016) that indicated the inverse relationship between household size/dependence ratio and food security.

iii. Education of the household head

The findings of the current study indicated that education had a direct impact on food security. When other factors are kept constant, the odds ratio of 1.252 for education level implies that the odds ratio of being food secure increases by a factor of 1.252 as education level increase by one unit or grade. In other words, for every one unit increase of education level, the odds of food security status increase by 25.2 percent. In the urban areas, education plays a pivotal role to generate income either through direct employment as skilled labor or self-employment. Education significantly affects individuals 'access to information whereby households who have higher education tend to choose the best income incurring businesses, improve access to food and choose nutritious, safe, and healthy food to achieve household food security. The FGD and KI participants indicated that educated households could have more employment opportunities as they speak Amharic and can communicate with various groups of the community. Similarly, according to

Gebre (2012) and Ibrahim (2016), households with education heads had improved food security status.

iv. Household income

The findings indicated that household income had a significant (P<0.01) contribution to the model with a direct relationship with food security status. From the binary regression analysis, the odds ratio of 1.001 suggests that the odds ratio of being food secure increases by a factor of 1.001 as household income increase by one unit, considering other factors being constant. For every one ETB increase of household income, the odds of food security status increase by 0.1percent. Thus, income earning can be an indicator of food security since it determines the amount of food that can be purchased by a household. The finding of a positive association between the education of household head and food security in this study is consistent with the findings of Tadele (2019) that reported improved food security status for households with higher educational levels.

4.5 Household Dietary Diversity Status

Dietary diversity is the variety or the number of different food groups consumed by the IDP households to assess the nutrient intakes during the study period. The study participants indicated that dietary diversity is mainly influenced by the economic status such as food purchasing power of the IDP household. Thus, household dietary diversity (HDD) is an important food and nutrition outcome measuring the household's ability to access food as well as its socioeconomic status based on the previous 24 hours. According to Huluka (2019), HDD is in influenced by the food security status of the household which is in turn determined by the education and age of the household head, socio-economic characteristics of the households, and the location.

In this study, the mean dietary diversity score (HDDS) was 4.94 for the IDP households with a minimum and maximum HDDS of 2 and 8, respectively (Table 4.16). Taking the population in the third tercile as a cut-off point (reference) group, the households were categorized into three groups. Thus, 47 percent of the households consumed less than 5 food groups which were with poor dietary diversity and are lower than the minimum DDS requirement. On the other hand, 54 percent of the IDP households had been under high dietary diversity category consuming six and above food groups (Table 4.17). The study confirmed that dietary diversity is lacking with a

severe problem among the 47 percent of the respondent households since their diets are predominantly based on starchy staples such as cereals while little or no animal products, fruits and vegetables were consumed. However, Hassen (2013) showed that the household dietary diversity score was found to be 5.9 in Addis Ababa city which is better that the study area.

Table 4.17 Mean household dietary diversity score and number of food groups consumed by IDP households

Dietary Diversity Level	Frequency	Percent	Mean	SD	Maximum	Minimum
Low (<5 food groups)	47	33.1	3.3	.793	4	2
Medium (5 food groups)	41	28.9	5	.000	5	5
High (≥6 food groups)	54	38.0	6.4	.623	6	8
Total (1- 12 food groups)	142	100.0	4.94	1.443	8	2

Source: Own Survey (2021)

Almost all of the households had consumed food prepared from cereals such as rice and spaghetti, *enjera,* porridge, and so on followed by cooking oils. Furthermore, about 79.6 percent of the IDP households were fed on vegetable foodstuff specifically tomato (Figure 4.4). Similarly, results from FGD participants indicated that rice and wheat was the staple food dominantly consumed by the IDP households in Gelan town, followed by vegetables particularly tomato. Animal source foods such dairy products, meat, and eggs are less consumed by booth food secure and food insecure groups; only less than 16.9 percent of the households could have access to animal source protein foods. According to the FGD participants, the mean HDDS was 4.94 since food aid, including cooking oil was provided to the community some weeks before the commencement of this study.

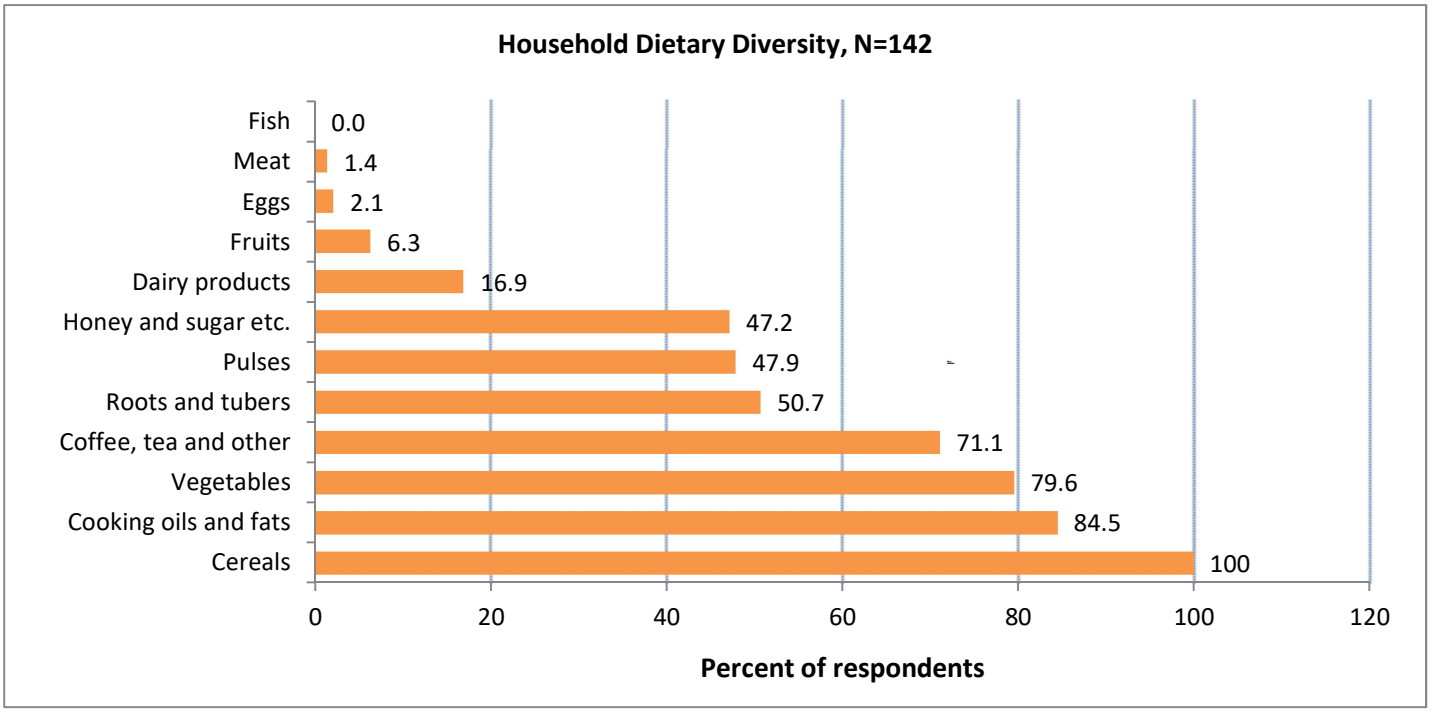

Figure 4.5 Household dietary diversity

Source: Own Survey (2021)

Relationship between dietary diversity and food insecurity access scale

The mean household dietary diversity score (HDDS) was 4.6 and 6.4 for food insecure and food secure IDP households, respectively (see Table 4.18). The variation in mean HDDS score between food secure and food insecure households was highly significant ($P<0.001$). Thus, correlation between HDDS and the household food insecurity access scale (HFIAS) was negative and statistically significant ($P<0.05$, $R= -0.447$) for the study community. The result indicated that adequate dietary diversity associated with improved food security status or lower HFIAS score of the households. On average, thus, the food secure households had better monthly income and the capacity to purchase various food groups than the food secured households do. In line with this, Ngema *et al.* (2018) indicated that HDDS correlated with determinants of food security such household income as well as with other measures of food security such as HFIAS.

Table 4.18 Household dietary diversity score by food security status of the IDP households

	Food security Status	N	Mean	Std. Deviation	t value
Household Dietary Diversity Score	Food secure	26	6.4	1.391	6.6***
	Food insecure	116	4.6	1.236	
Pearson Correlation Coefficient (R) for HDDS and HFIAS					-0.447**

*** and **** significant at 5 and 1% probability level*

Source: Own Survey, 2021

4.6 Household Coping Strategies

As a response to food shortages, according to the FGD participants, the IDP household employed various coping strategies. The key coping strategies included rely on less preferred and less expensive food, borrowing food, reduce the number of a meal, reduce the size of a meal, seeking relief assistance from the government, household splitting, looking for remittance to purchase food, selling household assets, drop out of children from schooling, migration for the search of jobs mainly in their previous areas in Somali National Regional State, begging for foods from the local community, complete evacuation from Gelan town and so on.

In this study, the mean coping strategy index (CSI) score was 54.26 for the IDP households residing in Gelan town during the assessment period (see Table 4.19). The result indicated that a high score of CSI relates to severe food insecurity of the households. On average, thus, the food insecure households employed many more severe coping mechanisms than the food secured households to cope-up with food shortages (see Table 4.19). Ibrahim (2016) also reported that food secure households had significantly lower ($P<0.01$) CSI scores.

4.6.1 Consumption coping strategy

The households change the food consumption behavior as a result of food shortages at household level. Almost all of the respondent households (100 percent) had applied dietary change as a strategy for managing the shortfall. Thus, the most important coping mechanism used by a large number of IDP households was relying on less preferred and less expensive food. Due to low

income and limited resources, the households switched from the consumption of food of their preference to the less preferred or less expensive food. Specifically, about 72.5 percent of the participants were responded to relay on less preferred food resources on daily basis in a week (Table 4.20). Dietary adjustments or eating less-preferred foods or reducing portion size are the easily reversible strategies implemented by the households when the situation improves.

Table 4.19 Coping Strategy Index of the IDP households in Gelan town

CSI level *	Frequency	Percent	Mean	SD	Minimum	Maximum
Lower CSI (less than 45)	48	33.8	32.3	8.43	18	44
Medium CSI (45-61)	41	28.9	54.8	3.41	46	60
Higher CSI (≥62)	53	37.3	73.8	9.62	62	104
Total	142	100.0	54.26	19.23	18	104

* CSI 44 and 62 are the first and third tercile respectively or the lower and the upper cut-off points

Source: Own Survey (2021)

Limiting the size of the meals consumed (100 percent) was also the commonly practiced coping strategies by the IDP households (100 percent), followed by restricting adult consumption (69.3 percent) and reducing the number of meals eaten (99.3 percent) in a day. At sever condition of food shortages, skipping the entire day without eating was adapted by the 28.2 percent of the households at least for a day in a week during the study period (see Table 4.20). Therefore, those households who skip the entire day are more food insecure than the households who switched from consuming expensive foods to cheaper one. This was mostly undertaken by those IDP households who are unemployed and did not have the capacity to feed their family on daily basis after the stoppage of the food aid. The FGD participants also explained that the households practiced change in diets and reducing the number and quantity of meals per day. This was undertaken shifting from the inclusion of a variety of vegetables and fruits as well as animal source foods during good season to relatively cheaper food sources such as cereals and limiting to potato and tomato. In line with this study, Tsegaye *et al.* (2018) also reported that reducing amount was the most commonly practiced coping mechanism by the food insecure households in the urban areas. Similarly, severely food insecure households prefer to stay hungry to extend consumption days for the small amount of food they had.

Table 4.20 Households response to consumption coping strategies

Coping Strategy	Households' response (percent)		Frequency of occurrence (percent)		
	Yes	No	1-2 day	3-6	Daily
1. Dietary Change					
• Rely on less preferred food and less expensive food	100	0	5	23.9	72.5
2. Rationing, or managing the shortfall					
• Limit portion size at mealtimes	100	0.0	12	28.2	63.4
• Restrict adult consumption	99.3	0.0	8	31.7	62.7
• Reduce number of meals eaten in a day	99.3	0.7	7	35.2	59.2
• Skip entire day without eating	28.2	71.8	22	7.7	4.9

Source: Own Survey, 2021.

4.6.2 Support and asset based coping strategies

Asset and assistance are the common strategies employed by the households under limited income to access food. As a strategy, the households practiced short-term measures to increase household food availability through borrowing food or rely on others and purchasing food on credit basis. Moreover, the households adapted short-term measures to decrease the numbers of people to feed while sending the family members to eat elsewhere or begging in the local community. Borrowing food or rely on food from shops such as rice, spaghetti, macaroni, and other food items was the most common coping strategy (86.6 percent) practiced by the food insecure households followed by the purchasing food on credit strategy (71.8 percent) (Table 4.21). The female FGD participants indicated that it is common and of course a custom to borrow food from neighbors and consumable foods from shops as a sort of community self-help approach to support each other specifically the poor households or individuals.

Furthermore, sending of the family members to eat elsewhere as a strategy was practiced by 27.5 percent of the IDP household. According to the FGD participants, the most disastrous coping strategy was begging for food and skipping out for the whole day without eating. Specifically, the study found out that the 3.5percent of the respondents under severe food security used to send household members to beg in the local community (Table 4.21). Similarly, migrating back to

Somali region for the search of job and receiving economic supports from the relatives and friends were also among the coping strategies practiced to food shortages during the study areas.

Table 4.21 Households response to assistance and asset based coping strategies

Coping Strategy	Households' response (percent)		Frequency of occurrence (percent)		
	Yes	No	1-2 day	3-6	Daily
1. Short-term measures to increase household food availability					
– Borrow food or rely on others	86.6	13.4	38	45.1	14.8
– Purchase food on credit	71.8	28.2	14	48.6	13.4
2. Short-term measures to decrease numbers of people to feed					
– Send HH members to eat elsewhere	27.5	72.5	12	14.1	4.9
– Send household members to beg	3.5	96.5	0	1.4	2.1
3. Other coping strategies					
– Depend on aid from outside the HH	98.6	1.4	-	-	-
– Migration for the search of foods and jobs	32.3	67.7	-	-	-
– Receive remittance	31	69	-	-	-

Source: Own Survey, 2021.

4.6.3 Correlating coping strategy index with food insecurity access scale

The mean coping strategy index (CSI) score was 26.8 and 60.42 for food secure and food insecure households, respectively (see Table 4.22). The variation in mean CSI score between food secure and food insecure households was highly significant ($P<0.001$). Thus, correlation between CSI score and the HFIAS indicator was positive and highly significant ($P<0.05$, $R=0.712$) for the study community. The result indicated that high score of CSI relates to sever food insecurity of the households. On average, thus, the food insecure households employed many more severe coping mechanisms than the food secured households so as to cope-up with food shortages (see Table 4.21). In line with this, Maxwell (2008) indicated that CSI correlated with determinants of food insecurity such household income as well as with other measures of food insecurity such as HFIAS.

Table 4.22 Summary Statistics of Coping Strategy Index by Food Security Status

	Food security status	Frequency	Mean	Std. Deviation	t-value
CSI Score	Food secure	26	26.77	6.327	10.95***
	Food insecure	116	60.42	15.347	
Pearson Correlation Coefficient (R) for HFIAS and CSI Score					0.712**

*** and **** significant at 5 and 1%*

Source: Own Survey, 2021.

CHAPTER V: CONCLUSION AND RECOMMENDATIONS

5.1 Conclusion

The study showed that the IDP community in Gelan town was predominantly food insecure households whereby more than 80 percent of the respondents where under food insecurity category. Sex and age of the household head, family size, and socioeconomic factors such as low level of household income, level of education of the household head and occupation status were among the factors that affected the food security status of the IDP households. The results from the logistic regression model showed that from the eight predictor variables, three of them, namely dependency ratio, education level of the household head, and monthly income of the households were the determinants of household food security in the study area. Monthly income of the households and food security are positively related; the more income the households could earn, the less likely they would be food insecure. Similarly, the more the household head is educated, the higher is the probability of the remaining family members getting an education and being familiar with modern technologies and information. This increases the probability of being food secure.

Household dietary diversity is associated with the income level and purchasing power of the households. Limited proportion of households had consumed micronutrient rich food groups such as fruits and animal source food groups indicating the hidden hunger in the community. On average, the dietary diversity score (HDDS) was 4.94 which is lower than the minimum requirement.

The IDP households practiced harmful or negative coping strategies due to the termination of food aid lack of money to buy food during the study period. Majority of the households use dietary change such as consuming less preferred or less expensive food as a coping strategy as a response to mild food shortages. Purchase food with loan received either from their relatives, friends or neighbors as well as borrowing food items from local shops and neighbors were also commonly adapted. At extreme conditions, begging and skipping out the whole day without consuming any food at least for a day in a week were the harmful coping mechanism used by the IDP households.

5.2. Recommendations

Based on the research findings and food insecurity prevalence among the IDP households, the following recommendations are forwarded for policy makers, the community and researchers.

- Since food insecurity is prevalent among the IDP households in Gelan town, food aid programs should be in place again as a short term interventions particularly for severely food insecure households.
- The food insecure IDP households should be supported to involve in various business opportunities and expanding income-generative activities in the town so that they would be able to improve their income level.
- Since educated households had better food security status, household heads at the lower educational level should get short-term vocational trainings on financial and skill that could help them to join skill labor and self-employment, and contribute to improved food security status in the study area.
- The town municipality should provide facilities such as shades or small shops and market space for IDP households particularly for the women to help the engage in petty trade and other self-employment activities.
- At community level, the IDP households should exert maximum effort to improve their livelihood and build self-reliance
- Finally, further study should be conducted to identify community friendly business opportunities for a long-term livelihoods and food security status improvement of the IDP households.

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Annex

Annex I: Questionnaire for the household survey

Informed consent form

Researcher:

My name is Solomon Bogale, and I am an MSc student at Addis Ababa University. I am kindly inviting you to participate in a research study. Involvement in the study is voluntary, so you may choose to participate or not. I am now kindly going to explain the study to you. Please feel free to ask any questions that you may have about the research. I will be happy to explain anything in greater detail.

The objective of the questionnaire/questions is to obtain your frank information on the subject as you are familiar and the information you give is highly valued for this research exercise. This will take approximately (20 to 30 min) of your time. The risks in participating in this research will be minimized by keeping all information (either confidential, in the case where your identities need to be retained or can be associated with your responses, or anonymous and confidential, in the case where you do not allow responses to be connected with a particular subject). The benefit of this research is that you will be helping us to better understand the food security situation of IDP households in Gelan town, Ethiopia. If you do not wish to continue, you have the right to withdraw from the study, at any time.

Participant:

I……voluntarily agree to participate in this research study. I understand that even if I agree to participate now, I can withdraw at any time or refuse to answer any question without any consequences of any kind. I understand that I have had the purpose and nature of the study explained to me in writing and I have had the opportunity to ask questions about the study. I understand that I will not benefit directly from participating in this research. I understand that a transcript of my interview will be retained for some time.

I understand that under freedom of information legalization I am entitled to access the information, I have provided at any time while it is in storage as specified above.

_____ _____

Signature of the Study Participant Date

_____ _____

Signature of the Researcher Date

Questionnaire for the household survey

Expectations/Indicators	No	Questions	Category	Code
	1	Date of survey		
Study participant and area	2	Name of the respondent		
	3	Name of the household head		
	4	Location (region/woreda or town)		
	5	How many years have you lived in Gelan town?		[ ]
Household Demography and major variables under study: *HH size well as age and education level of the household head*	6	Household size	Male	[ ]
			Female	[ ]
			Total	[ ]
	7	Age of the household head (in a year)		[ ]
	8	Sex of the household head	Male	0
			Female	1
		Religion	Muslim	1
			Christian	2
			Waqefata	3
			Other	4
	9	Marital status of the household head	Single	1
			Married	2
			Divorced	3
			Widowed	4
	10	Education level of the household head	Cannot read and write	1
			Read & write, but no formal education	2
			Grade 1 – 4	3
			Grade 5 – 8	4
			Grade 9 – 12	5
			Higher education	6
	11	Education level of the respondent (if not HH head)	Cannot read and write	1
			Read & write, but no formal education	2
			Grade 1 – 4	3
			Grade 5 – 8	4
			Grade 9 – 12	5
			Higher education	6
	12	Marital status of the respondent	Single	1
			Married	2
			Divorced	3
			Widowed	4
			Polygamy	5
			Other (specify)	6
	13	Is the head capable to work/ economically active	Yes	1
			No	0
	14	If the head is inactive, why?	Sick	1
			Aged	2
			Disable	3
			Other, specify	4
The dependency ratio, monthly household income, and access to credit by the household	15	Occupation of HH head	Unemployed	1
			Trader	2
			Self-employed	3
			Daily wage	4
			Government employed	5
			Pension	6
			Other	
	16	Labor availability (number of individuals)	Less than 15 year	[ ]
			15-24 year	[ ]
			25-64 year	[ ]
			Above 64	[ ]
	17	Do you have any disability (physical and/or mental)	Yes	1
			No	0

	18	How many of your family members (>18years) are currently unemployed?		[ ]
Sources of household income, access to credit, employment, and expenditures	19	What is your household's primary source of income and amount in Birr during the last month? *(multiple responses is possible)*	Own business/self-employment	[ ]
			Private company employee	[ ]
			An employee in a government office	[ ]
			Remittance	[ ]
			Relief support /food aid	[ ]
			Wage labor	[ ]
			Other (please specify)	[ ]
	20	What is your major source of food at the moment? (*multiple responses is possible*)	Own business /self-employment	1
			Private company employee	2
			An employee in a government office	3
			Remittance	4
			Relief support	5
			Wedge labor	6
			Other (please specify)	7
	21	Have you received any type of credit for the last couple of years?	Yes	1
			No	0
	22	If Q# 21 is yes, from where do you get the credit?	Local money lender	1
			Friends and relatives	2
			Microfinance institute	3
			NGOs	4
			Other, specify	5
	23	If Q# 22 is yes, how much you took during the last 12 months?		[ ]
	24	If Q# 22 is yes, how much is yet unpaid (in Birr)		[ ]
	25	Access to social services such as education, health, etc.	Yes	1
			No	0
	26	If, Q#25 is yes, which source (*multiple responses is possible*)	Informal sources such as relatives, neighbor	1
			Formal source	2
	27	Monthly food and non-food expenditures (in Birr)	Food	[ ]
			Health cost	[ ]
			Clothing	[ ]
			Education	[ ]
			Water	[ ]
			House repair	[ ]
			Cooking: Firewood/ electricity	[ ]
			Entertainment	
			Transport cost	
			Communication	[ ]
			Debit	[ ]
			Social contributions	[ ]
			Other	[ ]
Remittance and food aid	28	Has the household received remittance this year?	Yes	1
			No	0
	29	If Q#26 is yes, what was the annual remittance (in Birr)		[ ]
	30	Have you received food aid during the last 12 months?	Yes	1
			No	0
	31	If Q#28 is yes, please indicate the type and amount received during the last 12 months.	Grain (kg)	[ ]
			Edible oil (Liter)	[ ]
			Lentil (kg)	[ ]
			Cash (Birr)	[ ]
			Others, specify	[ ]
	32	Monthly estimated food aid (in Birr)		[ ]

Impact of conflict-induced displacement	33	What was the impact of the conflict on your household? (*multiple responses is possible*)	Lost family member	1
			Injured	2
			Lost livelihood assets including house	3
			Lost social cohesion	4
			Other (specify)	5
	34	What were your sources of livelihoods/income at your original place before the conflict? (*multiple responses is possible*)	Self-employment	1
			Private company employee	2
			An employee in a government office	3
			Remittance	4
			Relief support	5
			Wage labor	6
			Other (please specify)	7
	35	What was your monthly income in your previous location? (Birr)		[ ]
Shocks Impacting Households	36	In the last year, what difficulties have negatively impacted your household's ability to meet your food & nonfood needs?	Loss of employment of hh member	1
			Sickness/ health expenditures	2
			Death of hh family/ funeral	3
			High food prices	4
			High fuel /transport cost	5
			Unexpected pregnancy	6
			Insecurity	7
			Divorce/separation	8
			Failure of a small business	9
			Other	10
Migration	37	Do any of the household members of the household live outside (migrating) the Gelan town?	Yes	1
			No	0
	38	If Q# 36 is yes, the purpose of migration	Search of job	1
			In search of food	2
			Job transfer	3
			Recruited into the army	4
			For education	5
			Other, specify	6
Household Food Insecurity Access Scale (HFIAS)		Household Food Insecurity Access Scale (HFIAS) Measurement *Information on household food consumption should be collected for the past 4 weeks reference period (a month recall).*		
	39	In the past four weeks, did you worry that your household would not have enough food because of a lack of money or other resources?	No	0
			Yes	1
	39a	If Q# 34 is yes, how often did this happen in the past 4 weeks?	Rarely (1-2 times)	1
			Sometimes (3-10 times s)	2
			Often (more than 10 times)	3
	40	Were you or any household member not able to eat the kinds of foods you preferred because of a lack of resources?	No	0
			Yes	1
	40a	If Q# 35 is yes, how often did this happen in the past 4 weeks?	Rarely (1-2 times)	1
			Sometimes (3-10 times)	2
			Often (more than 10 times)	3
	41	Did you or any household member have to eat a limited variety of foods due to a lack of money or resources?	No	0
			Yes	1
	41a	If Q# 36 is yes, how often did this happen in the past 4 weeks?	Rarely (1-2 times)	1
			Sometimes (3-10 times)	2
			Often (more than 10 times)	3

	42	Did you or any household member have to eat some foods that you did not want to eat because of a lack of money or resources to obtain other types of food?	No	0
			Yes	1
	42a	If Q# 37 is yes, how often did this happen in the past 4 weeks?	Rarely (1-2 times)	1
			Sometimes (3-10 times)	2
			Often (more than 10 times)	3
	43	Did you or any household member have to eat a smaller meal than you felt you needed because there was not enough food?	No	0
			Yes	1
	43a	If Q# 38 is yes, how often did this happen in the past 4 weeks?	Rarely (1-2 times)	1
			Sometimes (3-10 times)	2
			Often (more than 10 times)	3
	44	Did you or any other household member have to eat fewer meals in a day because there was not enough food?	No	0
			Yes	1
	44a	If Q# 39 is yes, how often did this happen in the past 4 weeks?	Rarely (1-2 times)	1
			Sometimes (3-10 times)	2
			Often (more than 10 times)	3
	45	Was there ever no food to eat of any kind in your household because of a lack of money or resources to get food?	No	0
			Yes	1
	45a	If Q# 40 is yes, how often did this happen in the past 4 weeks?	Rarely (1-2 times)	1
			Sometimes (3-10 times)	2
			Often (more than 10 times)	3
	46	Did you or any household member go to sleep at night hungry because there was not enough food?	No	0
			Yes	1
	46a	If Q# 41 is yes, how often did this happen in the past 4 weeks?	Rarely (1-2 times)	1
			Sometimes (3-10 times)	2
			Often (more than 10 times)	3
	47	Did you or any household member go a whole day and night without eating anything because there was not enough food?	No	0
			Yes	1
	47a	If Q# 42 is yes, how often did this happen in the past 4 weeks?	Rarely (1-2 times)	1
			Sometimes (3-10 times)	2
			Often (more than 10 times)	3
Coping strategy index		In the past 7 days, if there have been times when you did not have enough food or money to buy food, how many days has your household had to:		Frequency score [0 - 7]
	48	How many days has had to Rely on less preferred and less expensive foods		
	49	How many days had to Borrow food from a friend or relative**?**		
	50	How many days had you purchased food on credit**?**		
	51	How many days had to Send children to eat with neighbors**?**		
	52	How many days had to Send household members to beg**?**		
	53	How many days has your household had to Limit portion size at mealtimes**?**		
	54	How many days had to Restrict consumption by adults for small children to eat**?**		
	55	How many days had to Feed working members of HH at the expense of non-working members**?**		
	56	How many days has your household had to Reduce the number of meals eaten in a day**?**		
	57	How many days has your household had to Skip entire days without eating**?**		
Household Dietary Diversity Score		Information on household food consumption should be collected using the previous 24hours as a reference period (24-hour recall).	No	0
			Yes	1
	58	Any CEREALS sorghum, maize, rice, wheat, barley? (e.g. bread, injera, porridge, or other grain products)	No	0
			Yes	1
	59	Any PULSES and LEGUMES like beans, peas, lentils, or nuts??	No	0
			Yes	1
	60	Any ROOT and TUBERS like potatoes, enset, yams, cassava	No	0

			Yes	1
	61	Any VEGETABLEs like kale, carrot, sweet potato, tomato, onion, etc.?	No	0
			Yes	1
	62	Any FRUITS like mango, avocado, fruit juice, papaya?	No	0
			Yes	1
	63	Any MEAT beef, lamb, goat, camel, chicken?	No	0
			Yes	1
	64	Any EGGS?	No	0
			Yes	1
	65	Any FISH?	No	0
			Yes	1
	66	Any DAIRY products like yogurt, milk, or other milk products?	No	0
			Yes	1
	67	Any foods made with oil, fat, or butter?	No	0
			Yes	1
	68	Any sugar or honey or sugary foods such as chocolates, candies, cookies, and cakes?	No	0
			Yes	1
	69	Any other foods, such as condiments, coffee, tea?	No	0
			Yes	1

Annex II: Checklist for Focus Group Discussion with the community

Dear respondents,

This research study is on _Food security status and determinates of UPSNP beneficiaries in Addis Woreda 08 conducted by Mr. Solomon Bogale for partial fulfillment of MSC in Food Security, Development Studies at Addis Ababa University. The objective of these FGDs is to obtain your honest information on IDP households Gelan town. The information you give, therefore, is highly valued for this research exercise. The information collected from you will not be shown to anyone outside of this study and the analysis of reporting will not disclose your identity. The results of this research will advance the understanding of the food security status of the IDP households residing in the urban areas in Ethiopia. Thank you in advance for your cooperation.

Checklist for Focus Group Discussion with the community

Expectation /indicators	**FGD Guides**
Background information	1. When were your displacement and the date of your settlement in Gelan town? 2. What were the major reasons for your displacement? 3. What were your major sources of livelihoods and income before the conflict? 4. How the conflict-induced displacement did affect your livelihoods? 5. How the local community treats you? How did the host community contribute to establishing your livelihoods?
Food security information	6. Do you think that IDP households in the town have a problem with food security? How would you characterize the extent of the problem? 7. How foods insecure are households now as compared to the past? Changes over time?
Food access	8. Do people have problems purchasing food or necessities? 9. Do you think those food items are accessible, available, and affordable in this town? Explain how it is or is not 10. Is the community able to pay for basic household needs (household consumables, education, health cost, fuel, etc.?) 11. Have you ever failed to access food from these sources when you have money? Do you think that food availability and affordability vary with the season? Explain how it is or is not, which months are more difficult or not 12. Changing pattern of food security through different months 13. How do you describe the effect of the recent escalation of food prices? Explain 14. What kind of food do the IDPs use to consume? Can you list your cultural foods?
Sources of livelihoods and income	15. What are your major sources of livelihood in your new location (Gelan)? 16. Which are the major sources of income for this household? Why? 17. Which months are the leanest times in terms of food and income?
Coping mechanism	18. How do people cope if there is a food shortage in the households? What strategies do households use to meet family food needs during the shortage of foods or income?
Food insecurity determinants	19. What are the determinants of food insecurity? List them
Challenges to achieving food security	20. What challenges do people face that limit their ability to maintain food security for the IDP households in Gelan town?

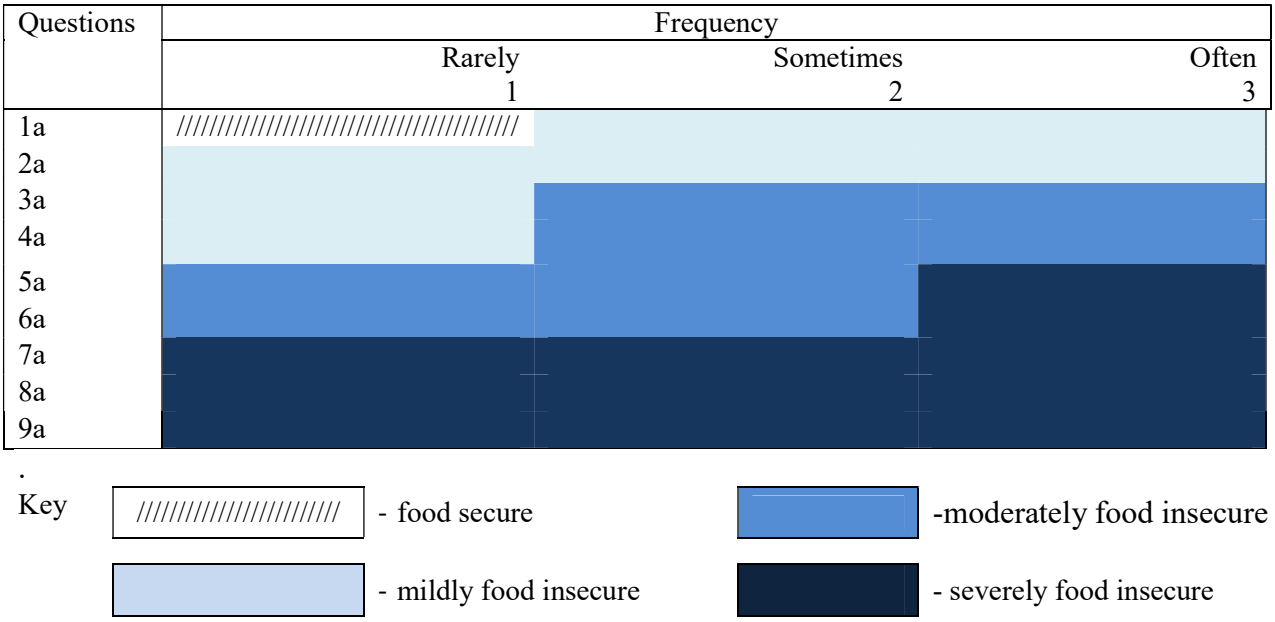
Annex III. Checklist for Key Informant Interviews *(with the community leaders, host community, and local admin staff)*

Dear respondent,

The main objective of this research is to collect information on the food security situation of IDP households in Gelan town. The information will be mainly used for academic purposes. If you accept participating in this research, you will be doing so voluntarily, and there will not be any monetary returns. You are also free to refuse to respond to any questions you do not feel comfortable answering or to withdraw from the research altogether. This interview will take about an hour of your time to respond to the questions. If you accept participating in this interview, you will be doing so voluntarily, and there will not be any monetary returns. You are also free to refuse to give ideas in case you do not feel comfortable and free to withdraw from the interview anytime you want. This interview will take about an hour of your time. Thank you in advance for your cooperation

Expectations/indicators	**KII questions**
Background information on IDPs	1. How these IDPs were settled in Gelan town? Was that their interest? 2. Was there any conflict with the local community? If so, what and how?
Food insecurity status	3. What is your general assessment of food insecurity level in the Gelan town specifically on IDP households?
Food and other aid	4. What kind of aid/support is provided to IDPs by the government, local administration, and humanitarian institutions? Why that kind of aid? 5. If it provides food, what kinds of food do you give? How much? How frequently? How do you select your beneficiaries?
Sources of income and livelihoods	6. What do most IDPs do for income and work in this town? 7. What are the major livelihood sources for this community at the moment? 8. What are the major expenses for households? Rent? Food? Transportation?
Community coping strategies	9. How do food insecure IDP households in this town cope with food shortages
Challenges encountered	10. From your experiences with working with these IDP communities, what are the major challenges faced by poor households in acquiring food? SWOT analysis
Food security interventions	11. Do you have any current projects related to food insecurity in the town concerning IDPs? 12. What kind of planning do you have for food insecurity in IDPs?

Annex IV. Categories of food insecurity (access) for HFIAS score



Annex V. Template for the calculation of coping strategies index per household

No	Behaviors: In the past 7 days, if there have been times when you did not have enough food or money to buy food, how many days has your household had to:	Frequency: Number of days out of the past seven: (0-7)	(1-3) Weighted Score	(F * S)
1	**Dietary Change**			
	a. Rely on less preferred and less expensive foods		1	
2	**Increase Short-Term Household Food Availability**			
	b. Borrow food from a friend or relative**?**		2	
	c. Purchase food on credit**?**		2	
	d. Gather wild food, hunt, or harvest immature crops**?**		4	
	e. Consume seed stock held for next season**?**		3	
3	**Decrease Numbers of People**			
	f. Send children to eat with neighbors**?**		2	
	g. Send household members to beg**?**		4	
4.	**Rationing Strategies**			
	h. Limit portion size at mealtimes**?**		1	
	i. Restrict consumption by adults for small children to eat**?**		2	
	j. Feed working members of HH at the expense of non-working members**?**		2	
	k. Reduce the number of meals eaten in a day**?**		2	
	l. Skip entire days without eating**?**		4	
	Total Household Score:			