Mekelle University

College of Business and Economics

Department of Management

Post war rural household food security challenges, the case of Samre Woreda, Tigray region, Ethiopia

By: Werke Beyene Kahsay

A Thesis Paper

Submitted In Partial Fulfillment for the Award of Master of Arts in Development Studies (Regional and Local Development)

***Principal Advisor*: Bihon Kassa (PhD)**

January, 2025

Mekelle, Ethiopia

ACKNOWLEDGEMENT

First, I would like to express my sincere appreciation and gratitude to my advisor Bihon Kassa (PhD) for his support during conducting this thesis. I would also want to acknowledge for those who participate in this thesis directly or by represent different sectors. Finally, I give my best gratitude for Hagos Kidane for his fruitful and valuable support.

List of acronyms or abbreviation

CBO _____Community based organization

DFID_____Department for international development

GAO_____Government accountability office

FAO _____Food and Agricultural office

IFAD _____International fund for development

NGO_____Non governmental organizations

TBoARD_____Tigray Bureau of Agriculture and Rural Development

TSA_____Tigray Statistics Agency

SAoRD _____Samre Office of Agriculture and Rural development

UK_____United Kingdom

UNDP_____United nation development program

USAID_____United states agency for international development

VEP_____Vulnerability expected poverty

VER_____Vulnerability uninsured exposure of risk

VEU_____Vulnerability expected utility

WFP_____World food program

WHO_____World health organization?

Table of Contents

ACKNOWLEDGEMENT i
List of acronyms or abbreviation ii
List of tables v
List of figures vi
ABSTRACT vii
CHAPTER ONE: INTRODUCTION 1
1.1 Back ground of the study 1
1.2 Statement of the problem 3
1.4 Research questions 4
1.5 Objectives of the study 5
1.5.1 General objective 5
1.5.2 Specific objective 5
1.6 Significance of the Study 5
1.7 Scope and Limitation of the study 5
1.7.1 Scope of the study 5
1.7.2 Limitation of the study 6
1.8. Organization of the study 6
CHAPTER TWO: REVIEW OF RELATED LITRATURES 7
2.1 The concept of food security 7
2.2 Fundamentals of Food Security 8
2.3 Approaches to Vulnerability Analysis 9
2.4. Conflict and food security 10
2.5 Food security status of households in Ethiopia 13
2.6 Cause of food insecurity in Ethiopia 15
2.7 Food security coping strategies practiced in Ethiopia 17
CHAPTER THREE: RESEARCH METHODOLOGY 19
3.1 Description of study area 19
3.2 Research Design 21
3.3 Study Populations 21
3.4 Sample Size and Sampling Techniques 21
3.5 Sample Size Determination 22

3.6 Sources of data 23
3.7 Data collection instruments 23
3.7.1. Quantitative data collection instruments 23
3.7.2. Qualitative data collection instruments 24
3.8. Methods of Data Analysis, Presentation, and Interpretation 24
3.9. Ethical Considerations 25
CHAPTER FOUR: RESULTS AND DISCUSSION 26
4.1. Socio-demographic characteristics of sample respondents 26
4.2. Post war food Security status of rural household in Samre Woreda 29
4.3 Post war food security challenges of the rural household in Samre Woreda 31
4.4 Post war rural household food insecurity coping strategies 34
4.3.1 Capacity building and awareness, and extension service 34
CHAPTER FIVE: CONCLUSION AND RECOMMENDATIONS 36
5.1 Conclusion 36
5.2 Recommendations 37
REFERENCE 38

List of tables

Table 1: Name of selected Tabias, target population and sample size----------23
Table 2: The sex distribution of the sampled respondents (N=372)----------26
Table 3: Household characteristics of the sample households----------27
Table 4: Food security status of the Samre Woreda (N=372)----------29
Table 5: Food consumption related issues----------30
Table 6: Main Challenges of food security in Samre Woreda (N=372)----------32
Table 7: Level of food insecurity effects on household members ----------33
Table 8: **Extent of rural household food security threated and level of adjustment takes place (N=372)**----------33
Table 9: Main reasons for Variation in food availability----------34
Table 10: Food security and copping mechanism related training in Samre Woreda----------34
Table 11. Post war rural household food insecurity coping strategies in Samre Woreda ----------35

List of figures

Figure 1: Map of the study areas 20

ABSTRACT

In Ethiopia, food security remains as the major challenges where conflict and drought are the key driving reasons for food insecurity specifically, the war in Tigray has been significantly worsen the challenges of food security of rural households. Therefore, the study was conducted to assess the post war rural household food security status, challenges and coping strategies in Samre Woreda. Data were collected from three Tabia of the Woreda, using simple random sampling to select 372 rural households. The collected data were analyzed and presented using simple descriptive statistics. The result of the study pointed out that the post war food security status of the study area is very low, since the family member feed themselves, on average, two times per day, with an average household food requirement of 31.75kg per month for five members in the household. Besides, the majority 77.4% of respondents had no access to credit services during 2023/24 even after the conflict cool down. The result of this study also shows during the post war period conflict, drought and increasing food price are the major challenges of rural household food security ranked as first, second and third respectively. Involving on off-farm activities, food Aid and household asset selling were the coping strategies used as 1st, 2nd and 3rd respectively, by the rural households when they face food shortage. Hence, solving challenges on food security is the concern of many actors. It should be better if policy makers, concerned governmental organizations and NGOs place more emphases strengthening the extension and credit services to improve the productivity of rural households and to diversify their source of income like off farm activities. It is also recommendable to rehabilitate the war affected communities through immediate interventions

Key words: Food insecurity, Challenges, and coping strategies.

CHAPTER ONE: INTRODUCTION

1.1 Back ground of the study

Food security as defined by the world Bank is "when all people at all times have physical and economic access to sufficient safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life" (World Bank, 1986). Food security is a multi-dimensional concept which has many factors influencing it such as agricultural production, trade, income, food quality, clean water, sanitation, governance or political stability, level of education, application of technology, purchasing power, employment status, livelihood opportunities, market factors etc. (John, 2008). Which if not properly considered can affect the food security status of a household and thus of that of a country. This definition brings to bare four main dimensions of food security which are physical availability of food, physical and economic access to food, food utilization and stability of the other three over time.

According to Government accountability office (GAO), enough food in terms of quantity and quality for all people is an important factor for a healthy and productive life as well as for a nation to sustain its development. Lack of food in long terms will lead to hunger and starvation that can cause death. So that enough food is a necessity condition to be well nourished (DIRECT-TO-CONSUMER, 2011). However, according to the report from international fund for agricultural development (IFAD), in 2011 about 1.4 billion people in the world were living on less than US$1.25 a day. Out of this, about one billion of them live in rural areas where agriculture is their primary source of livelihood, especially sub-Saharan Africa and Southern Asia (Shuai & Sun2011)

Half of the world's undernourished population lives in a country experiencing armed conflict or violence (FAO, 2021). As the main driver of food insecurity, conflict has pushed some 99.1 million people into acute food insecurity in 2020 alone (FSIN, 2021).

FAO (2017) estimated that 27.4% of the total populations in the African continent were facing a serious and chronic food security issue, which is estimated to be four times more than any other continent in the world. Sub Saharan Africa has the highest number of hungry individuals in

Africa estimated at about 306.7 million and that West Africa accounted for an estimated 12% of the total figure of hungry people in Africa. Among the causes identified were the unpredictable rise in global food price, government continuous neglect in the agricultural area, conflicts especially in Eastern Africa, climate change, gender inequality and high level of unemployment (Garibaldi, 2012).

The underlying causes of food insecurity vary ranging from conflict, climatic conditions, and poor agricultural sector, Africa shows higher levels of food insecurity than other parts of the world (FAO, 2021). Armed conflict is one of the primary drivers of food insecurity (FAO, 2017, 2021).

According to most of these reports, the Ethiopian National Defence Force and Eritrean Defence Forces that are fighting against the TPLF led armed groups in Tigray are the primary actors killing civilians and destroying civilian infrastructure. Tigray is one of the regions in Ethiopia located in the Northern tip of the country. The war in Tigray, which started on 4 November 2021, destroyed the economic, social, political, and environmental landscape and aggravated the level of food insecurity in the region. 77.38% of the households are food insecure and the calorie deficiency gap is estimated at 33.69 and 69.29% of the households need urgent lifesaving support. The war increased the number of food-insecure households by more than 153% and the number of catastrophe households by more than 87%. The severe food insecurity is a man-made famine where the Ethiopian and Eritrean government military forces and the Amhara 'fano' and militia have destroyed all the economic bases of the households; looting cereals, livestock, assets of the people, burning crops, slaughtering livestock, blocking humanitarian assistant, total and partial blockage of electricity, banking services, and others (Manaye *et al*., 2023).

Together other significant factors (like drought), the current situation in Tigray, Ethiopia, is clear testimony of how certain forms of armed conflicts, particularly non-international armed conflicts wherein civilians are highly vulnerable, are strongly linked to famine. Tigray region in general and Samre Woreda in particular is highly affected by conflict and drought in the recent time.

1.2 Statement of the problem

The Food and Agricultural Organization (2017) projected that the figure of people suffering from hunger in the world was approximated at 815 million, indicating an upward movement from 775 million in 2014 and 777 million in 2015. Out of the total figure, 98% of the hungry people resided in developing countries, while the remaining 2% were located in developed countries (FAO, 2017). According to the World Health Organization (WHO), as of 2018, there were 821 million People now hungry and over 150 million children stunted, putting hunger eradication goal at risk (WHO, 2018). Armed conflict is one of the primary drivers of food insecurity (FAO, 2017, 2021). Close to 80% of the world's 155million stunted children and about 60% of undernourished people live in conflict-affected countries (FAO, 2017). In 2017, the UN expressed concern that more than 20 million people in Nigeria, Somalia, South Sudan, and Yemen were at risk of conflict-induced famine (Akande & Gillard, 2019).

The impacts of conflict on food security are likely to last longer in fragile states, such as nations or nation-states that have weak state capacity or state legitimacy. Some of these places are on the path of recovery from conflict but still suffer from poor governance, corruption, and a lack of governmental commitment to implement broad-reaching, inclusive development goals (World Bank, 2011). Conflict often leads to food insecurity, whereas food insecurity and related societal tensions are correlated with higher chances of conflict outbreaks both armed conflict and food insecurity are also linked to chronic poverty (Garba, et al., 2020).

Sub Saharan Africa has the highest number of hungry individuals in Africa estimated at about 306.7 million and that West Africa accounted for an estimated 12% of the total figure of hungry people in Africa. Among the causes identified were the unpredictable rise in global food price, government continuous neglect in the agricultural area, conflicts especially in Eastern Africa, climate change, gender inequality and high level of unemployment (Selvaraju, 2013). The underlying causes of food insecurity vary ranging from conflict, climatic conditions, and poor agricultural sector, Africa shows higher levels of food insecurity than other parts of the world (FAO, 2021). The impacts of armed conflict on food security can be further exacerbated by climate events that have been increasing in frequency and coverage, such as droughts, floods, hurricanes, and other natural disasters.

The armed conflict in Tigray region of Ethiopia erupted on the 4th of November 2020 had devastating consequences on the lives, health, and livelihoods of the people of Tigray. The armed conflict and its associated siege have led to death of civilians, massive displacement of residents, destruction of infrastructures, interruption of all government services such as banking, communication, health, education, transport, and others and near collapse of the economic activities in the region. Recent rapid field assessment by the Agriculture Bureau revealed that crops and animals were looted or destroyed, and the majority of the farmers were left without any food, seed, oxen, farm tools and farm inputs which led to the total collapse of the agriculture sector of Tigray (TBoA, 2023). Even though there are studies on the impact of war on household assets and food security by different researchers on different titles such as armed conflict and household food insecurity evidence from war-towns Tigray, Ethiopia (Weldegiargis et al., 2023), conflict and households acute food insecurity evidences from the ongoing war in Tigray northern Ethiopia (Araya and Lee, 2024) The Effect of the war on smallholder agriculture in Tigray, Northern Ethiopia (Manaye *et al*, 2023), but, their study focused on effect of war on food security of smallholder farmers and food security status. Most of studies also conducted during the war period not show post war food security status of rural households. Beside they have not seen the copping strategy and basic food security challenges.

Thus, the food shortages linked to the armed conflict would set the stage for years of food emergencies in Tigray, even after fighting ceases. However, the level of the armed conflict linked household food insecurity and its aftermath is insufficiently studied in Tigray. High quality data on household food insecurity level is needed for implementing programs and developed policies. Moreover, there is less evidence on how the armed conflict has affected the household food insecurity in Tigray. Therefore, this study initiated to give better emphasis on post war period of rural household food security status, food security challenges and main food insecurity coping mechanisms employed by the rural household in Tigray specifically in the study area.

1.4 Research questions

- ✓ What proportion of the population in the study area is food insecure?
- ✓ What are the main challenges of food security in the study area?
- ✓ What is the food insecurity coping strategies used by rural households in the study?

1.5 Objectives of the study

1.5.1 General objective

The general objective of this study is to assess post war rural household food security challenges the case of Samre Woreda, Tigray region, Ethiopia.

1.5.2 Specific objective

- To describe post war level of food security status in the study area
- To investigate main challenges of food security in the study area.
- To identify food insecurity coping strategies employed by rural households in the study area

1.6 Significance of the Study

This research would be of great importance for policy-makers, practitioners and other concerned bodies. Thus, upon its completion, both governmental and non-governmental institutions can make use of it as input for policy intervention as part of their development endeavor. Besides, it can also serve as a stepping stone for further studies in the area. Therefore, it can generally be said that this study can be of great importance to educational institutions, community-based organizations and other stakeholders.

1.7 Scope and Limitation of the study

1.7.1 Scope of the study

Geographically: the scope of this study would be delimited to the 10 Tabias of Samre Woreda.

Thematically: this study was given attention to assess the status of post war food security, to investigate main challenges of food security, and to identify food insecurity coping strategies. This study was pay special attention to formal institutions which are active in food security achievement of the community under study. More specifically to NGOs, community-based organizations and governmental sectors.

Methodologically: this study was employed mixed research method and households was taken as a unit of analysis.

1.7.2 Limitation of the study

Even though food insecurity is common in both urban and rural setups, this study is limited only to rural household's residents of Samre Woreda. In addition, this study was limited and generalized only to Samre rural communities. This study was only deal with assessing the status of post war food security, challenges of food security, and food insecurity coping strategies regardless of other issues, and the study is not able to show the trend of the problem in hand because of its cross-sectional nature. Time limitation and financial shortage factors also affected the scope of the study

1.8. Organization of the study

This study is organized into five chapters. The first chapter is deals with a brief outline about the research background, statement of the problem, associated research questions, objectives, significance, and scope, limitation of the study and organization of the paper. The second chapter deals with revision of conceptual as well as empirical literature pertinent to the objectives of the study. Chapter three is exclusively deal with the research methodology pursued. It outlines the research methods employed for this study. It provides a brief description of selection of the study areas, the data collection method and analysis along with the justifications. Chapter four also deals with the data processing, interpretation and discussion of findings using the different methods and models. The fifth chapter reveals both the conclusion and recommendation of the study.

CHAPTER TWO: REVIEW OF RELATED LITRATURES

This chapter of the study was focused on food security concepts, challenges, and food insecurity coping strategies

2.1 The concept of food security

The birth of the term food security took a center stage in academic and development policy debates since the 1960s and 70s as connoting a linear function of food availability. The mere food availability argument then was questioned when food insecurity remained despite an increasing trend in per capita food output and relatively lower food prices (Stijn, 2018) and following the 'access' revolution of Sen (1981), rather arguing food insecurity as a demand concern, not supply. Following Sen, food insecurity has, since then, been defined primarily as the problem of access to food.

In addition to the above food security definition World Bank (1986) also defined as "access by all people at all times to adequate food for an active and healthy life.'' The definition bare both food availability and food access to be the basic components of food security. Further Elaborating of World Bank's explanation, the World Food Summit, Rome 1996, mentioned food security as "all people at all times have economic and physical access to an adequate amount of, safe and nutritious foods to meet up their nutritional needs and food preferences for an active and health life."

Food security has been defined differently by different authors like (Maxwell and Frankenberger, 1992), for a comprehensive account of multiplicity of the definitions and subsequent indicators of food security

Food insecurity is a growing global concern. In today's world, attaining food security for all people at all-time becomes a key challenge for developing countries in general, and in Ethiopia in particular. According to the FAO (2005), a state of food insecurity exist when the people lacks access to adequate and safe supply of food on stable basis. Also, food insecurity occurs when the people faces lack of access for food at all times to enough food (nutritionally a good quality) for an active and healthy life. Food security, therefore, mainly includes non-availability of food, lack of access to food and improper utilization of food. Therefore, the determinants of household food security in effect integrate the factors that determine each component of food security. In

general, the determinants of household's food security status are different at different levels i.e., global, national, regional, household and individual levels (Khan et al, 2015).

Food insecurity at the household level may take two types: chronic and transitory food insecurity. Chronic food insecurity is persistent in that it can be considered to be a continuous state of affairs (Hart, 2009). Chronic food insecurity will be translated into a high degree of vulnerability to famine and hunger (Hart, 2009).

2.2 Fundamentals of Food Security

Households are food secure when they have year-round access to the amount and variety of safe foods that their member needs to lead active and healthy life. The food available to the household should be shared according to individual needs; the food must be sufficient in variety, quality and safety and each family member must have good health status in order to be benefited from the food consumed. Food security is a broad concept, encompassing issues related to the nature, quality, and security of food supply as well as issues of food access. According to Sen, (each definition of food security involves the following three key elements. These are:

1) **Improving availability**: availability is a term used to indicate supply of food in terms of quantity and quality to provide adequate energy protein, carbohydrate and micronutrients to the population of a country on a sustainable basis. Availability to household is basically the capacity to acquire the food it needs which primarily could be satisfied by producing it. Any activity of a household that contributes to improve agricultural production or food supply would be considered as part of food availability strategy.

2) Increasing access; it is the strategy households apply to get the food. Households and individuals may acquire food through own production, purchase or national safety net mechanisms. The concept of vulnerability is highly related with the idea of access. Access is also the ability of a household to purchase food i.e. the physical availability of food commodities on the local market and ability of the household to purchase food.

3) Appropriate use of available food: food insecure households tend to have larger and high number of dependents. Meeting household food needs is the result of appropriate food use

4. **Stability of food** availability, access, and utilization.

2.3 Approaches to Vulnerability Analysis

In theoretical terms, vulnerability may be conceived as the threat that welfare may be compromised at a future date. This threat may be derived from two factors: first, those with high levels of welfare variability, and second, those with systematically low levels of welfare. Nevertheless, whichever the source of vulnerability, the concept is clearly tied to welfare outcomes.

Applications of vulnerability methods are closely linked to the way welfare is measured, there are three relevant approaches. The first is to assess vulnerability as expected poverty (VEP). This strand of studies seeks to estimate the probability that welfare may fall below some norm or minimum expected standard of living in the future (Chaudhuri, et al., 2002). The second is quantifying vulnerability as low expected utility (VEU). Researchers in this area argues that using the VEP methodology is inconsistent with the expected utility framework, and proposes a measure of vulnerability to address these concerns (Ligon, E., & Schechter, (2003). Finally, the last approach is vulnerability as uninsured exposure to risk (VER). This setting, contrary to the previous ones, stems from an ex-post, backward looking perspective, which concentrates on observed past outcomes rather than on an aggregate measure of vulnerability (Tesliuc & Lindert, 2002).

Generally, there is no established consensus in the literature regarding the most appropriate approach to the analysis of vulnerability. Furthermore, most analyses of vulnerability focus on poverty, rather than on food insecurity. Traditional approaches tend to emphasize the role of assets in reducing vulnerability. Even more crucially, some of the most common methodologies that purport to analyze vulnerability are static in nature, and thereby fall short of an appropriate assessment of the dynamic nature of vulnerability (Scaramozzino, 2006).

Sen's (1988) influential entitlement approach links vulnerability to inadequate access to assets, including intangible ones, such as social capital. However, access to assets offers no guarantee that the assets will be used in an effective fashion to reduce vulnerability. The UK Department for International Development (DFID), for example, develops its vulnerability assessments in

terms of the household assets and activities required to maintain or sustain livelihoods (Department for International Development, 2003).

By contrast, the World Bank uses a risk-based approach for assessing household vulnerability (World Bank, 2005). The "Social Risk Management" framework of the Bank considers the sources of vulnerability and the ability of the community to manage the associated risk. The emphasis is largely on minimizing risk exposure, although a major weakness in the approach is the absence of the consideration of those risks that stem from insufficient ownership or access to asset.

2.4. Conflict and food security

The world history tells us the occurrence of so many devastating wars in the various corners of the globe. Though there are variations in the nature, motivation, and aims of the wars occurred, economic, political, and social motived wars have dominated the wars that arose in the world. The theoretical literature on the impact of civil conflicts/wars on economic growth provides two conflicting views. The first view is associated with Benoit's hypothesis of war (Benoit, 1978) which states wars affect positively economic growth and ARTICLE HISTORY Received 19 August 2023 Revised 13 March 2024 Accepted 13 March 2024 KEYWORDS Conflict; food insecurity; IPC; logistic regression; Tigray; war REVIEWING EDITOR Joe Thomas, Institute of Health and Management, Australia SUBJECTS Economic Psychology; Health Psychology; Testing, Measurement and Assessment; Social Psychology; Economics; Urban Economics; Food Laws & Regulations JEL CLASSIFICATION CODES I30; I32; I38; P46 development since military expenditures are treated as expansionary policy tools. War can increase GDP per capita by reducing unemployment, and improve production and infrastructure by shifting people from family formation and other non-market activities into wartime production. Using an endogenous growth model, Lai et al. (2002) confirm that the rise in military expenditure tends to stimulate the sustained economic growth rate which supports Benoit's hypothesis. Reno (1998) supported the functional approaches to violence and civil war and explained that violence and instability often serve a range of political, social, and economic functions for individuals.

Appreciating and considering the economic benefits of peace as given, De Groot et al. (2022) stated that wars brought economic benefits to countries that fought far away from home due to

their domestic military spending while causing damage to foreign territories. They added that high-income countries are, also, benefited from their external participation in the conflict of the developing countries which are hit hardest by the conflict.

The armed-conflict in Yemen caused 8.4 million people to be classed as emergency and catastrophe and reduced the crop, livestock, and fish production and, as a result, their supply has been reduced to local markets (FAO et al., 2017). More than 85,000 children have died due to lack of food and hunger resulting from the long-lasting war in Yemen (Save the Children International, 2017). In Syria, the civil war resulted in severe food insecurity and all forms of malnutrition. It caused about 12.4 million people to be food insecure and 1.3 million to be severely food insecure. Similarly, about 600,000 and 90,000 children are chronically and acutely malnourished, respectively. The overall food insecurity has grown from 42 to 71% during 2020. The impact of the continued Syrian crisis during 2020 has led to a 21% (13.4 million) increase in the number of people in need of humanitarian assistance (Humanitarian Program Cycle, 2021).

In Somalia, rampant due to conflict and erratic weather, large numbers of people are facing high levels of acute food insecurity. Between January to June 2021, about 1.6 million Somali people are experiencing high levels of acute food insecurity (IPC Phase 3 or above) and need sustained urgent action (IPC, 2021). In 2020, conflict, weather extremes, and economic shocks, including COVID-19 related economic effects again constituted the three primary drivers of acute food insecurity. However, the drivers are often interlinked and mutually reinforcing, rendering it difficult to specify a singular trigger of each food crisis. Conflict drove internal and cross-border displacement, deprived people of their livelihoods, disrupted markets, trade, and crop production, prevented herders from accessing their pasturelands, and contributed to high food prices. Conflict also constrained humanitarian access, leaving communities without essential assistance, and exposing aid workers to increased risks (FSIN & GNAFC, 2021).

Conflicts expressed in terms of the large number of fatalities are correlated with a large estimated reduction in the national dietary energy supply of countries (Stijn, 2018). Verwimp (2012) also stated that conflict affects the food security situation of the farm households via its effect on income sources, local food chain, and political systems.

A study made in Afghanistan confirms the inverse relationship between conflict and food security. Households in provinces with higher levels of conflict experienced lower levels of food security than provinces with lower levels of conflict as there were staple food price increases in the provinces with lower levels of conflict (D'Souza & Jolliffe, 2013). Further, the conflict caused the destruction of rural infrastructure, the loss of livestock, deforestation, the widespread use of land-mines, and migration leading to long-term food security problems (Teodosijević, 2003).

After the bloody civil war ended in 1991, the Ethiopia government carried out several economic reforms to improve the livelihood of people and securing inclusive development. Since the founding policy direction of the nation, ADLI strategy, till the GTP II, the country has introduced several policies and strategies which would help to achieve economic successes; recording an economic growth rate of averaging 10.6% for successive 12 years (2005 2017), reduced the level of poverty to around 24.1% and improve the provision of social services National Planning Commission (NPC, 2017). Additionally, even though the level of food insecurity in Ethiopia is driven by drought, COVID-19, displacement, conflict, and others, the number of food insecure households in Ethiopia dropped from 40% in 2014 (WFP & CSA, 2014) to 16% in 2020 (IPC, 2020).

Tigrai has also achieved several economic and social triumphs. In its second growth and transformation plan period (2016–2019), the GDP of the region was grown by 8.1% and the share of food insecure households was reduced to 25%. In this period, agriculture had the highest share in GDP (38.5%), followed by services (34.6%) and industry sectors (26.9%) Tigray Statistics Agency (TSA, 2020). Resulting of the successive economic growth in the region, the level of poverty was reduced from 61.4% in 1995/6 to 31.8% in 2010/11 and 27% in 2015/16 and is believed to further reduce to <24% in 2020. IPC (2021) pointed out that the severe crisis of the acute food insecurity in Tigray was mainly due to the recurrent conflict, large population displacements, movement and access restrictions, limited humanitarian access, loss of production, loss of livelihood assets, dysfunctional or non-existent markets, and loss of income. FAO (2021) stated that the outbreak of the war in the Tigrai resulted in the destruction of livelihoods, internal displacement, and high levels of violence in the region. Furthermore, the armed-war has brought about the destruction of the social services providers which aggravate the

incidence of food insecurity in the region. The inconsistency in the empirical findings on the link between war and food insecurity and the lack of war-time status of food insecurity, depth, and model-based determinants of food insecurity in Tigray made this topic a researchable area.

2.5 Food security status of households in Ethiopia

Different studies were carried out in rural as well as urban part of the country and these studies concluded that the food security status of the households is different from region to region and from district to district. Empirical evidences argued that the majority of households in the central part of the country are food insecure. For example, Beyene and Muche (2010) pointed out that about 64% of the households were food insecure and the rest 36% were food secure. It also revealed that average value of the energy available for food insecure and secure households was 1,822 Kcal/AE/day and 2,908 Kcal/AE/day, respectively. The minimum and maximum energy available for food insecure households was 1,043 Kcal and 2,098 Kcal, respectively. Whereas the minimum and maximum energy intakes of food secure households were 2,203 Kcal and 3,492 Kcal, respectively. Furthermore, another study conveyed that 58.16 % of the total households in the area were food insecure with food insecurity gap and severity being 20 % and 9.4 %, respectively (Girma, 2012).

Different findings in the northern part of Ethiopia showed that there is high incidence of food insecurity. As to Mesfin (2014) finding, 48% of the households in the area were vulnerable to food insecure. In addition, the incidence of food insecurity in west and east Gojjam zones of Amhara region was 51.3% and 59.2%, respectively (Motbainor *et al.*, 2016. A study conducted in drought prone areas of northern part of the country also indicated that the majority (74%) of households were experiencing food insecurity (Arega, 2013). Unlike to this, Tsegay (2009), figured out that the incidence of food security rural households in Tigray region was 42% which lower relative to other drought prone areas while 58% of rural households being food secure.

Many empirical evidences in eastern Ethiopia argued that the majority of households were food secure. For example, Lemma and Wondimagegn (2014) revealed that the majority (62.7%) of households were food secure and about 37.3% were food insecure. Furthermore, Hussein and Janekarnkij (2013) pointed out that 63% of the households in Somali region were food secure,

while 37% were found to be food insecure. As opposed to this, another study confirmed that about 56.5% of households in the area were food insecure (Abdirahman, 2015). In addition to this, Gemechu *et al* (2015), conveyed that the majority (67.1%) of households in West hararghe were food insecure whereas 32.9% households were food secure. Moreover, about 75% of households in Diredawa were food insecure (Bogale and Shimelis, 2009).

Different findings in the southern part of Ethiopia showed that the incidence of food insecurity is lower relative to other parts of the country. As to Mitiku et al. (2012) finding, about 64% of households in Shashemene district were found to be food secure while 36% were food insecure. In addition, Mequanent et al (2014) revealed that 42.9% households were food insecure; whereas, 57.1% of them were food secure. Despite this, Nigatu (2011) depicted that about 54% of the households in some parts of southern Ethiopia have been facing mild to severe food insecurity. Ahmed (2015) also supported this by figuring out that about 77% of households in bulehora as food insecure households. Moreover, the majority (84.91%) of rural households in guraghe zone were food insecure (Zelalem, 2014). A study conducted by (Buom, 2013) in Gambella region revealed that 80.8% of rural households were food insecure, whereas 19.2% of sampled rural household was food secure.

2.6 Cause of food insecurity in Ethiopia

Several studies were conducted on causes of food insecurity in Ethiopia; some of those are the following. According to (Abduselam, 2007) a number of factors can explain the trend towards the increasing food insecurity situation in Ethiopia. The interaction between environmental degradation, high population growth, diminishing land holdings, outbreak of plant and livestock disease, chronic shortage of cash income, poor social and infrastructural facility, instability and armed conflicts, pre and post-harvest crop loss and lack of on-farm technological innovations led to a significant decline in the productivity per households and cause food insecurity and starvation. These trends have combined with the repeated effects of drought over years, to substantially erode the productive assets of rural households.

Food insecurity in Ethiopia is caused by population pressure, drought, shortage of farmland, lack of oxen, deterioration of food production capacity, outbreak of plant and animal disease, poor soil fertility, frost attack, shortage of cash income, poor farming technologies, weak extension services, high labor wastage, poor social and infrastructural facility and pre and post-harvest crop loss (Birara eta l., 2015).

El Niño was expected to last at least until April/May 2016, exacerbating the food insecurity caused by the upcoming lean season. Over 15 million people are expected to be in need of humanitarian assistance in 2016. Poor households in affected areas in southern Afar and Sitti (former Shinile) Zone in Somali Region, in East and West Hararghe zones in Oromiya, and in Wag Hemra and North Wollo in Amhara region, are expected to remain in Emergency (UNFPA,2015).

According to (Yenesew,2015) Natural disasters such as drought and climate change, shortage of farm land, lack of functional multi-party democratic systems, land reform policy, lack of appropriate policies and institutions, lack of rural infrastructures, population growth and lack of education are the major causes of food insecurity in rural Ethiopia.

The majority of the severest food crises after the second half of the 20 century were caused by a combination of several factors. The most common causes of food insecurity in African and other third world countries were: drought and other extreme weather events, pests, livestock diseases and other agricultural problems, climate change, military conflicts, lack of emergency plans,

corruption and political instability, cash crops dependence, aids and rapid population growth (AFI, 2012).

Ethiopia has relative political stability in Horn of Africa, however several areas are insecure. UNFPA, 2015 Conflict and civil unrest is the major sources of food insecurity problems and lead to serious disaster in Ethiopia, by disturbing the country ongoing economic growth and development progress.

Climate change affects food availability through its increasingly adverse impacts on crop yields, fish stocks and animal health and productivity, especially in sub-Saharan Africa and South Asia, where most of today's food insecure live. It limits access to food through negative impacts on rural incomes and livelihoods. Smallholder farmers and agricultural workers are more vulnerable to the impacts of such disasters. Severe droughts or floods can sharply reduce incomes and cause asset losses that erode future income earning capacity. In addition, to the extent that food supply is reduced by climate change, food prices will increase (FAO, 2016).

The main causes of food insecurity are high population growth rate, high reliance on small-size and rain-fed agricultural holdings, lack of access to input, lack of access to credit, high susceptibility to drought, limited access to basic service, lack of access to market, land degradation and decreased productivity, lack of income generation opportunity and alternatives, lack of access to technology and lack of access to information on market, agricultural technology EU, 2012).

2.7 Food security coping strategies practiced in Ethiopia

Households adopt and develop diversified coping strategies and sequential responses through which people used at times of decline in food availability. Different studies have been identified food insecurity coping mechanisms in Ethiopia some of those are reviewed the following manner. To cope with these problems Ethiopian people use sale of livestock, agricultural employment, and migration to other areas, requesting grain loans, sales of wood or charcoal, small scale trading and limiting size and frequency of meal as major coping mechanisms (Abduselam, 2017).

According to (Abdirahman, 2015) sale of more livestock than usual, borrowing of food, reduce number of meal, reduce size of meal, sale firewood and charcoal, seasonal migration, seeking alternative or additional job, rely on less preferred and less expensive food, seeking relief assistance, becoming temporary trade, household splitting, consume wild food, remittance, participating in cash basis project works were the common coping mechanisms practiced by households ho faced food ins

According to (Birara, 2015), Sale of wood or charcoal, small scale trading, income transfer systems, limiting size and frequency of meal, sale of livestock, agricultural employment and migration were major coping strategies. The rural dwellers of Ethiopian used different coping strategies so as to cope up with the existing food insecurity including reduction of number and quantity of meals per day; diversification of livelihood incomes, wage and migration. In addition to the coping mechanisms used by rural households the government of Ethiopia used different strategies to mitigate food insecurity in Ethiopia including food aid, implementation of productive safety net program and other food security reduction programs (Yenesew, 2015).

According to (Ahmed, 2015) on determinants of household food security and coping strategies: the case of Bule Hora District, Borana Zone, Oromia, Ethiopia, farm households coping mechanisms in are reducing number and size of meal per day, Skipping and reducing food help intake, Purchasing of grains from market, renting out land, selling livestock, pity trading, working as a laborer and borrowing cash or grains from others.

According to (Tekle and Birhanu, 2015) limiting population pressure, promoting income-generating activities, enhancing micro financing efficiency, creating employment opportunities,

information dissemination, and others can contribute to food security status of households in the study areas. Work as a daily labor, received relief food aid, migrate to work, reduce the number of meals, sale of livestock, purchased food on cash, ate less preferred food, sold household possession, sale of fire wood, sold seed meant for planting, borrow food/money from relatives, and Children discontinued school were the main means of coping mechanism to fight food insecurity (Misgina, 2014).

Accumulation of assets, reducing consumption, borrowing from others, building savings and seeking alternative sources of income and food are some of the copping strategies (Lemma & Wondimagegn, 2014). According to (Sadik, 2012) food aid, borrowing cash or grain from relatives, sale of livestock, reducing frequency and amount of meals, remittance were coping strategies practiced by the food insecure households.

According to (Tesfaye, 2013) Results revealed that important local strategies that were practiced by both food insecure and food secure households to cope with food insecurity. Those were purchase of food item on cash, sale of animals, borrowing from neighbors (relatives), stop sending children to school, income from off farm, selling charcoal, receiving gift of remittance, eat less food, selling other asset, out migration and relief food aid.

According to (Meseret, 2012) Also found that; reduction of meal, borrowing cash or grain, receiving food aid, working as a daily laborer, sale of livestock, fire wood, charcoal, wild grass (as a forage), and household assets, were coping strategies.

CHAPTER THREE: RESEARCH METHODOLOGY

This chapter is dedicated to discuss the methodological approaches that were used in this study. The chapter includes research design, selection of research participants, sampling technique and sample size, methods of data collection and instruments, data analysis techniques and ethical considerations approaches that were employed in this study.

3.1 Description of study area

This study was conducted in Samre Woreda south eastern zone of Tigray region, northern Ethiopia. The Woreda is located in south eastern Tigray far away about 65 km in the direction of South West of Mekelle city. The Woreda is also one of the Eight (8) administrative Woredas in south eastern zone of Tigray. The Woreda has 10 administrative Tabias. Based on the Woreda plan and finance development office the Woreda has a total of 98,494 inhabitants (about 49,244 of them are female), The Woreda has 5178 female headed families. The Woreda has a total of 12082 household; out of this 5178 are female headed households (SWPFDO, 2024).

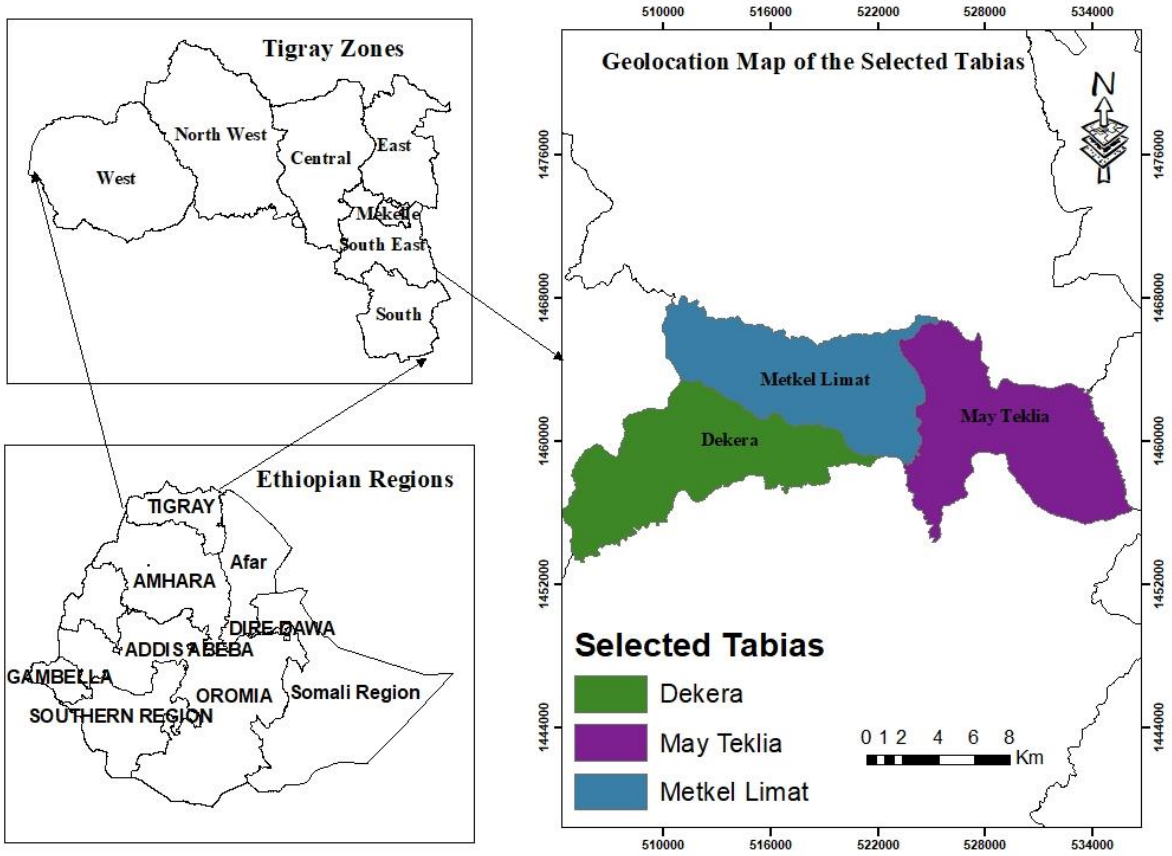

Figure 1: Map of the study areas

3.2 Research Design

This study was conducted to assess post war rural household food security status, challenges, and employed coping strategies in south eastern zone of Tigray, Samre Woreda. In regard to time interval, taking the very limited time and the nature of participants into account cross sectional research design was employed. In a cross-sectional survey, data are collected and analyzed, at specific point of time, from a subset or sample selected to describe some larger population at that very time (Babbie, 1990).

The study was employed mixed research approach in order to synthesize and incorporate the data sets. This means that both quantitative and qualitative data was collected simultaneously, but analyzed separately, and the findings or results was combined, and then, interpreted at last.

The application of both qualitative and quantitative approaches is quite crucial in that any possible mistakes or errors in one method are offset by other methods, therefore, more credible and more accurate results (Creswell, 2003; Redinour and Newman, 2008). Hence, here to clearly understand rural sample households and key informants involved in both of qualitative and quantitative approach in light with objectives of the study.

3.3 Study Populations

The target population of this study was rural household heads in Samre Woreda. According to the plan and financial development office of the Woreda (2024) estimated that there are 17,260 households over the 10 Tabias.

3.4 Sample Size and Sampling Techniques

Sampling refers to the procedure whereby a representative sample is drawn from a general population. Sampling designs are of two types: probability and non-probability sampling designs. The two are widely used in undertaking a study both in qualitative and quantitative social research (Babbie, 1990). Probability sampling refers to the manner in which the elements of the target population i.e. geographic units, households and persons – are selected for inclusion in a sample survey (UNDESA Statistics Division, 2005). Probability sampling design provides equal chance of being included in the study as a sample for the elements of a target population**.** Therefore, the survey in this study was guided in this sense.

At the other end of the spectrum is non-probability sampling design. Actually, non-probability samples can only be judged through subjective evaluation, for there is no statistical theory to guide their application (UNDESA, 2005). Accordingly, the selection of informants for key informant interview was selected purposively based on how it is relevant for the study.

3.5 Sample Size Determination

Once the subject of study and the study population are identified, the researcher has to determine how many items to take as samples with the application of certain sampling techniques (Scott, 2008).

For the purpose of this study both probability and non-probability sampling techniques were employed to select the necessary sample. The woreda was selected purposefully, since it is among the highly crisis affected woredas of Tigray. Secondly, Samre Woreda has 10 administrative Tabias. For the purpose of this study or to determine sample size the researcher was selected 3 administrative Tabias through simple random lottery method.

From the total households in those 3 Tabias (5386), 372 respondents were drawn by using the following sample size determination formula of Yamane (1976).

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

Where; **n** is the sample required; **N** is the total population; **e** is the sampling error which is 0.05 at 95% confidence interval.

Therefore n=5386/1+5386*(0.0025)

n =372

Therefore, the sample size selected for this study was **372** household heads as indicated below (Table 1). After determining the sample size, the number of households was taken proportionally to the sample size from each Tabia. Finally, individual respondents were selected from the selected Tabias using systematic sampling and goes through Nth interval after the selection of randomly from the first interval.

Table 1: Name of selected Tabias, target population and sample size

S/n	Name of Selected Tabias	Total HH heads	Sample size	Proposition
1	Metkel-limat	1843	127	34
2	Dekera	1493	103	28
3	Mai tekli	2050	142	38
	Total	**5386**	**372**	**100**

3.6 Sources of data

Both primary and secondary sources of data were used to find out detail information on the topic. The primary data was collected through key informant interview, FGD and sample survey methods with interview guide and questionnaire instruments respectively. The researcher was also conduct in-depth interview. Additionally, secondary data was assessed from published materials such as books, newspapers, reports, articles, websites and magazines.

3.7 Data collection instruments

In order to foster the reliability and validity of the research findings, both qualitative and quantitative methods were used in this study.

Different methods of data collection were applied in this study such as key informant interview, FGD, as well as sample survey; an interview guide and a questionnaire are also the instruments.

3.7.1. Quantitative data collection instruments

Questionnaires

Questionnaires are indispensable instruments or tools in surveys. Questionnaire is a set of structured questions which is administered to random sample, which is another key element of survey method, to one or a combination of these means of precision: test research hypotheses, to address specific objectives or to answer research questions (Babbie 1990).

Accordingly, a structured questionnaire was prepared and adopted, modified and translated into the local language (Tigringa) so as to collect data from the survey respondents.

3.7.2. Qualitative data collection instruments

Key Informant Interview

Key informant interview was employed so as to collect all the necessary qualitative data in line with other instruments. For the purpose of this study key informant interview was conducted with key informants. Those key informants were selected purposively by the researcher since they are assumed to have better understanding and first-hand information about the issue at hand. A semi-structured guide was used hoping that they would elicit more penetrating, qualitative information and responses through deeper discussion with key informants.

The key informant interviewees who participated in this study were the following. Agricultural development office, nongovernmental organizations, rural land management office, Cooperative office and Dedebit credit and saving institution. The key informants were selected purposively because the researcher believes that those are the main stakeholders who are engaged in livelihood of rural households.

Focus Group Discussions

Focus group discussion was employed as a qualitative data collection instrument. The researcher was employed FGDs data collection technique because FGDs have advantage over other instruments in that it can produce a highly valid and triangulated data if conducted properly. Three FGD groups were conducted (1 female, 1 male and 1 mixed groups). Participants in the FGDs were selected purposively using certain criteria like willingness, age, having enough time and each FGD was composed of 8 to 12 household heads.

3.8. Methods of Data Analysis, Presentation, and Interpretation

The data collection, presentation, interpretation and analysis were done according to the mixed research design. This means that both qualitative and quantitative data were presented and interpreted concurrently. First, the data presented separately in accordance with the appropriate techniques. The quantitative data also analyzed using statistical techniques particularly tables, percentages, and graphs. Then, once the data set was analyzed and presented in such ways, similarities and differences drawn for interpretation. Thus, data sets were combined at the interpretation and discussion section.

3.9. Ethical Considerations

Researchers have the obligation to obey certain kinds of ethical norms in that they help them confirm the credibility of the report of their studies. In the context of research, ethics involves a range of norms and principles (Babbie 1990; Bernard 2006).

First of all, a formal letter was requested from the department of Management MU in order to facilitate the researcher's access of to the fieldwork. Additionally, a letter of cooperation in local language, explaining the researcher's permanent and current affiliation status was took from Mekelle University College of Business and Economics. These letters were indicative about the objective of the study to relevant government structures and institutions in Samre.

Furthermore, a letter of informed consent was written and explained to the participants as key informants, in-depth interviewees. The researcher was informed to the participants that they would have the right to refuse to participate or withdraw at any time and that the information they provided was used for the purpose of the research thesis only. Moreover, they were ascertained that no harm would be inflicted upon them as a result of their involvement in the study, nor would they be granted compensation for their participation.

CHAPTER FOUR: RESULTS AND DISCUSSION

The results of the study are presented and discussed in this chapter. The results of the study are mainly presented in four main sections. The first section presents the Socio-demographic characteristics of the sampled respondents. The second section, reports on analysis of food Security status of the sampled household in Samre Woreda. The third section present on Challenges for food security of the household in Samre Woreda. The final section also reports on analysis of post war rural household coping strategies for food insecurity.

4.1. Socio-demographic characteristics of sample respondents

As indicated in Table 2, the proportion of female headed households in this study was found 23.9%. In this study, the female headed household representation was found reasonable. Similarly, the representation of male headed households in all Tabia was found almost the same (Table 2). Consistence to this study, in southern Tigray zone, Hagos (2024), reported that the representation of female headed household was about 28.5%.

Table 2: The sex distribution of the sampled respondents (N=372)

Tabia	Sex distribution of the household heads (N=372)					
	Male	%	Female	%	Total	%
Metkel limat	97	76.4	30	23.6	127	34.1
Dikara	78	75.7	25	24.3	103	27.7
May tekli	108	76.1	34	23.9	142	38.2
Total	283	76.1	89	23.9	372	100

Source: Computed from own survey, 2024

Education level of household head is an important input to create exposure and experiences in rural community. In fact, education level of farmers is assumed to increase the ability to obtain process and use agriculture related information and use technologies in a better way. The result of the study revealed that the educational level of respondents in the study area was ranges from no grade up to grade ten plus three; and with an average year of schooling 3.68 (Table 3).

The descriptive analysis showed that, the mean age of sampled respondents was 44.21 years. This implies that the mean age of the respondents was at productive age. The minimum and maximum age of the respondents was 22 and 73 years, respectively (Table 3). A family often consists of the head, the spouse, their children and some other persons living in the household. The average household family size was 5.11 whereas; the minimum and maximum was 2 and 11 members, respectively. The family size of the respondent was higher than the regional family size which is 4.3 persons per household and the national which is 4.7 (CSA, 2007). Besides, the dependency ratio of the study area is about 0.41 persons per family (Table 3). The average cultivable land size of the area was found about 0.41hectare per household. However, about 22% of the respondents did not have land. The result is almost the same with the report of Office of Agriculture and Rural Development of Samre Woreda (SAoRD, 2024).

The majority 65.3% of the respondents were participated in off/non-farm income activities, whereas remaining respondents were not participated in off/non-farm income activities (Table 3). The majority 77.4% of respondents had no access to credit services during 2023/24 even after the conflict cool down. During post war period there is very low credit access since the financial institutions lost their capacity to borrow the farmers as well as them lacks confidence on the farmers to payback their credit. As reported in Table 3, below among the 22.6% of the respondents 90.5% of them were receiving the credit from Dedebit credit and saving cooperatives.

Table 3: Demographic characteristics of the sample households

Variables	Unit	N	Mini	Max	Mean	Sd
Educational status of the household head	Years of schooling	372	.00	13.00	3.6801	4.68033
Age of the household head	Years	372	22.00	73.00	44.2177	12.48367
Family size of the household head	Number	372	2.00	11.00	5.1102	1.81227
Dependency ration	Number	372	0.00	0.75	0.4091	0.15821
Cultivable land size	Hectare	288	0.125	1.00	0.41	0.19
Variables	**Response**	**N**	**%**			
Off-farm income sources involvement	Yes	243	65.3			
	No	129	34.7			
Have you ever have had extension service	Yes	43	11.6			
	No	329	88.4			

Access to credit services	Yes	84	22.6
	No	288	77.4
Source of credit	Dedebit Credit and saving	76	90.5
	Cooperatives	8	9.5

Source: Computed from own survey, 2024

Dependency ratio is derived by dividing ages of household members below 15 and above 65 to the total family size.

4.2. Post war food Security status of rural household in Samre Woreda

The post war food security status of the study area is very poor, almost all respondents indicated that food security status of the woreda is very poor even it goes to hanger level. As indicated in Table 4, the family member of the study location was eaten on average two times per a day, with an average household food utilization of 31.75 kg per month for 5 family members. The total income of the family and expenditure is almost the same. This means the households that earns in a year almost allocate for food and with minimum amount for cloth. However, about 26.34% of the respondent only allocate for health care (Table 4). Generally, the households allocated about 79.20% of their income for food consumption with minimum and maximum of 50% and 95%, respectively (Table 4). Consistence to this study, a recently findings shows that about 89% of households in Tigray are classified as food insecure and 47% were severely food insecure (Araya & Lee, 2024). The high burden of households' food insecurity in our study communities is in line with the assessment done by the World Food Program (WFP), where 83% of the households were food insecure (WFP, 2024). This study pointed out that household food insecurity levels and household hunger status of the study communities was unacceptably high. Household members received 6 kg food per month which is below the standard that is 16.95 kg per person monthly which is an equivalent to 2100 kilo calories per day set by WFP. The increased prevalence of household food insecurity and increment of food insecurity conditions were primarily due to the disrupted production and economic activities of the households attributed to the armed conflict. According to the Bureau of Agriculture and Rural Development report, 75% of the livestock were slaughtered or looted, all poultry out-growers were interrupted, 85% of all milk processes were disrupted and 65% of forage processors have become dysfunctional implying that the armed conflict exacerbated household food insecurity in the study communities (TBoARD, 2021).

Table 4: Food security status of the Samre Woreda (N=372)

Variables	N	Mini	Max	Mean	Std. D
Total income of your family	372	20000	80000	40757.39	11955.504
Total expenditure of your family	372	20000	70000	38982. 4	9966.24
Income allocated for food share	372	10000	50000	31645.16	7387.45
Income allocated for cloth share	337	3000	50000	6109.79	7327.16

Income allocated for health care	98	1000	10000	2989.79	3064.58
Income allocated for social obligations	211	1000	50000	2445.49	1302.23
How many times your family eaten food	372	2	3.00	2.29	.457
The average household food utilization in kg per HH (per month)	372	20	60	31.75	11.15
What is the share of your HH income goes to food consumption (%)	372	50	95	79.19	8.51

Source: Computed from own survey, 2024

Individuals have experienced a reduction in food quality, variety, or quantity because of insufficient resources. According to (Weldegiorgs *et al*, 2023), majority of the households reported that they were worried that enough food may not be available in the household and were not able to eat preferred foods. In consistent to this, the present study pointed out that majority (76.3%) of respondents of the study area worried regarding the availability of enough food or the level of concern and lack of access to, variety and/or quantity of food (Table 5).

The increased prevalence of household food insecurity and increment of food insecurity conditions were primarily due to the disrupted production and economic activities of the households attributed to the armed conflict. As reported in Table 5, about 43.8% of the sample respondents threatened their household food security often due to the war. Consequently, significant number of respondents about (49.7%) of the study pointed out that due to the frequently threatened of their household food security they forced to adjust their consumption in response of the shock or threat.

Table 5: Food consumption related issues

Are you worried ran out of food last 12 months	**Yes**		**No**	
	N	%	N	%
	284	76.3%	88	23.7%
How often	**Your House holds food security threatened?**		**Do you have adjust consumption due to shock that affect HH**	
	N	%	N	%

Rarely	51	13.7	28	7.5
Sometimes	98	26.3	99	26.6
Often	163	43.8	185	49.7
very often	60	16.1	60	16.1
Total	372	100.0	372	100.0

Source: Computed from own survey, 2024

4.3 Post war food security challenges of the rural household in Samre Woreda

Armed conflict is one of the primary drivers of food insecurity. Close to 80% of the world's 155 million stunted children and about 60% of undernourished people live in conflict-affected countries (FAO *et al*. 2017). The impacts of conflict on food security are likely to last longer in fragile states, such as nations or nation-states that have weak state capacity or state legitimacy. Some of these places are on the path of recovery from conflict but still suffer from poor governance, corruption, and a lack of governmental commitment to implement broad-reaching, inclusive development goals (World Bank, 2011). Similarly, the armed conflict has significant negative effect on food security in Tigray. Recently, multiple studies have demonstrated that conflict negatively impacts food security (Weldegiargis *et al.,* 2023). The impacts of armed conflict on food security can be further exacerbated by climate events that have been increasing in frequency and coverage, such as droughts, floods, hurricanes, and other natural disasters (USAID, 2021). The result of this study also shows during the post war period conflict and drought are the major challenges of rural household food security ranked as first and second, respectively (Table 6). This implies that the recently happened conflict and drought in Tigray in general and Samre Woreda in particular experienced rural households which highly affected their socio-economic and infrastructural facilities in result it leads to food insecurity of household members. The finding of this study is in line with the study of USAID so conflict and drought are the two basic recent crises (USAID, 2021). Besides, according to recent study by Araya and Lee (2024), pointed out that 77.38% of the households are food insecure and the calorie deficiency gap is estimated at 33.69 and 69.29% of the households need urgent lifesaving support. The war increased the number of food-insecure households by more than 153% and the number of catastrophe households by more than 87%.

As reported in Table 6, high inflation rate was ranked as third major challenges of post war food security of the rural household. This can lead for unaffordability of daily foods consumptions and the food system. This is due to the conflict affects the total economic system and income generating activities of the rural households. In line to this, unaffordability of foods combined with low incomes; explain why the households in Tigray were not able to afford even the cheapest food (Weldegiorgs *et al.*, 2023).

Table 6: Main Challenges of food security in Samre Woreda (N=372)

Ranking	1st	2nd	3rd	4th	5th	6th	7th	8th	9TH		
										value	rank
war/conflict	238	119	8	7						3192	1
Drought	82	231	59							2999	2
high inflation	52	22	133	99	29	30		7		2448	3
lack of access			104	37	76	69	68			1810	4
lack of utilities/facilities			37	89	74	65	30	77		1667	5
Food availability			31	59	29	67	87	99		1443	7
system collapse /credit, market			15	67	119	61	52	32	21	1587	6
limited awareness				8	45	69	113	123	14	1148	8
Locust					7		21	21	323	463	9

Source: Computed from own survey, 2024

Though food security affects all members of the households in a given community, about 48.4% of the sample respondents replied that children were the more affected segments of the communities by food insecurity, were as about 39.8% of the sample respondents also replied that all household members were more affected by the food insecurity (Table 7). Consistence to this study FAO (2017), pointed out that close to 80% of the world's 155 million stunted children and about 60% of undernourished people live in conflict-affected countries. Therefore, from these findings we can understand that children are highly affected by food insecurity during conflict period.

Table 7: Level of food insecurity effects on household members

Which HH members are more affected by food insecurity	N	%
Children	180	48.4
Women	14	3.8
All household members	148	39.8
Children and women	30	8.1
Total	372	100.0

Source: Computed from own survey, 2024

Due to the house hold food insecurity about 49.7% of the sample respondents often adjust their consumption due to the shock that affects the households' asset. But only about 7.5% of the sample respondents indicated they rarely adjust their consumption due to the shock they face (Table 8). This implies that most of households in Samre Woreda experienced that they mainly focused on what they have and consumed according to their availability at hand.

Table 8: Extent of rural household food security threated and level of adjustment takes place (N=372)

How often	Your Household food security threatened?		Do you have adjust consumption due to shock that affect House Hold	
	N	%	N	%
Rarely	51	13.7	28	7.5
Sometimes	98	26.3	99	26.6
Often	163	43.8	185	49.7
Very often	60	16.1	60	16.1
Total	372	100.0	372	100.0

Source: Computed from own survey, 2024

As reported in Table 9, the respondents of the study area were asked as what was the most common reasons for variation of food availability on the last 12 months, 40.1% of the respondents replied that inadequacy of own production was the most common reason for variation in food availability (Table 9).

Table 9: Main reasons for Variation in food availability

Main reasons	Frequency	Percent
Inadequacy of own production	149	40.1
Limited HH income	66	17.7
Higher food price	23	6.2
Limited market supply	29	7.8
Inadequacy of own production and limited HH income	60	16.1
Limited household income and market supply	37	9.9
Limited household income and higher food price	8	2.2
Total	372	100.0

Source: Computed from own survey, 2024

4.4 Post war rural household food insecurity coping strategies

4.3.1 Capacity building and awareness, and extension service

Capacity buildings enhance the capacity of farmers to adopt shocks, utilize technology and develop resilience, furthermore the sample respondents were asked whether they are participated on food security and coping mechanisms or not. Accordingly, 88% of the sample respondents of the study replied that they never take training on food security and coping mechanisms during and post war period (Table 10).

Table 10: Food security and copping mechanism related training in Samre Woreda

Training and extension service on food security and coping mechanisms	Response	N	%
	No	327	88
	Yes	45	12

Source: Computed from own survey, 2024

Households often engage in various coping strategies to smooth their consumption at the time of crisis. Some include cutting meals, reducing quality of foods consumed, participating in self-help groups, and relying on monetary or in-kind transfers. Households also migrate for employment (either all together or they send specific members), sell household assets to smooth consumption (Verpoorten, 2009), change the type of crops grown (Arias *et al*. 2019, Brück 2003), engage in alternative or riskier occupations to diversify their sources of income, send women (Shemyakina

2015) or children (Di Maio & Nandi 2013) to work, marry girls early (Cherri *et al*. 2017, Shemyakina 2013) and, in extreme cases, sell family members into slavery or indentured labor.

The sample respondents this study was requested to rank the coping strategies they used when they face food insecurity accordingly, they ranked Involving on off-farm activities, food Aid and household asset selling as 1st ,2nd and 3rd coping strategies respectively (Table 11). However, the use of negative coping strategies increased, such as limiting portion sizes, relying on less preferred or less expensive foods, and/or reducing the number of meals eaten in the households, indicating increased stress by the households in meeting their food needs (Araya & Lee, 2024).

Table 11. Post war rural household food insecurity coping strategies in Samre Woreda

Coping strategy	First strategy		Second strategy		Third strategy		Overall ranking	
	N	%	N	%	N	%	N	
Consume low quality food	44	11.8	52	14.0	58	15.6	154	4th
Household asset selling	44	11.8	58	15.6	76	20.4	178	3rd
Involving on Off-farm activities	167	44.9	103	27.7	21	5.6	291	1st
seasonal migration	-	-	16	4.3	52	14.0	68	5th
Begging	-	-	23	6.2	16	4.3	39	7th
Food aid	101	27.2	105	28.2	83	22.3	289	2nd
diversifying farm activities	-	-	8	2.2	15	4.0	23	8th
Reducing number of meal	16	4.3	7	1.9	36	9.7	59	6th
Total	**372**	**100**	372	100	372	100		

Source: Computed from own survey, 2024

CHAPTER FIVE: CONCLUSION AND RECOMMENDATIONS

5.1 Conclusion

In today's world, attaining food security for all people at all-time becomes a key challenge for developing countries like Ethiopia. Food security remains as the major challenges in the country where conflict and drought are the key driving factors for food insecurity. Obviously, the war in Tigray has been significantly affects the food security status of rural households. However, there are limited empirical studies related to food security situation of war affected households on post war period. Hence, this study was conducted to assess the post war rural household food security status, challenges and coping strategies employed by rural households in Samre Woreda, South Eastern Tigray. For this study, a multistage sampling technique was employed to select 372 sample households using systematic sampling. The collected data from the household were analyzed using descriptive statistics and presented descriptively. The results of the study show that, the post war food security status of the rural household in Samre Woreda is very difficult. This implies that the family member of the study location was eaten on average two times per a day, with an average household food requirement of 31.75kg per month for five family members. This means the households that earns in a year allocate for food and with minimum amount for cloth. The governmental public services systems are almost collapse (for instance majority 77.4% of respondents had no access to credit during the post war). Still, during the post war period, conflict and drought are the major challenges of rural household food security ranked as first and second, respectively. Involving on off-farm activities, food Aid and household asset selling were using as coping strategies as 1^{st} ,2^{nd} and 3^{rd} coping strategies respectively, they used when they face food shortage. In conclusion, the post war food security situation of rural households in Samre Woreda is very low that means all households get below the minimum requirement set by international organization and accepted by Ethiopia.

5.2 Recommendations

- Addressing food insecurity is the concern of many actors it should be better if policy makers, concerned governmental organizations and NGOs place more emphases.
- Government should emphasize to strengthening and recovery the collapsed system of credit and agricultural extension services by arranging adequate trainings, workshops, and experience sharing, to increase food availability through household production and boosting household incomes
- Since the food security status of the rural households of the study areas is severely food insecure, it is suggested that humanitarian actors should provide enough emergency food aid interventions.
- Government and other development practitioners should focus on providing of basic agricultural inputs to improved production which helps to increase household income for improved food security
- Promoting the off-farm activities is one of the best options during post war period to address food insecurity of rural households so it suggested that government should engaged in providing of credit, training and other opportunities for getting immediate access to food and diversify their sources of income in the future.

REFERENCE

Abdirahman A. (2015**).** Food insecurity and coping strategies of agro-pastoral households in Babile district of Somali regional state, Ethiopia. An M.Sc Thesis of Graduate Studies of Haramaya University, Ethiopia.

Abduselam A. (2017). Food Security Situation in Ethiopia: A Review Study. International Journal of Health Economics and Policy, 2(3): pp. 86-96.

AFI (Amagansett Food Institute). (2012). Causes of Food Insecurity in African and Other Third World Countries.

Ahmed M. (2015). Determinants of household food security and coping strategies: the case of bule-hora district, borana zone, oromia, Ethiopia, European Journal of Food Science and Technology Vol.3, No.3, pp.30-44.

Akande, D., & Gillard, E. C. (2019). Conflict-induced food insecurity and the war crime of starvation of civilians as a method of warfare: the underlying rules of international humanitarian law. *Journal of international criminal justice*, *17*(4), 753-779.

Araya, T. and Lee, S.-K. (2024) 'Conflict and households' acute food insecurity: evidences from the ongoing war in Tigrai-Northern Ethiopia', *Cogent Public Health*, 11(1). doi: 10.1080/27707571.2024.2331844.

Araya, T., & Lee, S. K. (2024). Conflict and households' acute food insecurity: evidences from the ongoing war in Tigrai-Northern Ethiopia. *Cogent Public Health*, *11*(1), 2331844.

Arega B. (2013). Coping Strategies and Household Food Security in Drought-Prone Areas in Ethiopia: The Case of Lay Gayint District, GJDS, Vol. 12, No. 1 & 2, 2015

Bar-Nahum, Z., Finkelshtain, I., Ihle, R., & Rubin, O. D. (2020). Effects of violent political conflict on the supply, demand and fragmentation of fresh food markets. *Food Security*, *12*(3), 503-515.

Benoit, E. (1978). Growth and defense in developing countries. Economic Development and Cultural Change, 26(2), 271–280. https://doi.org/10.1086/451015

Beyene, F., and Muche, M. (2010). Determinants of Food Security among Rural Households of Central Ethiopia: An Empirical Analysis.Q. J. Int. Agric.49 (4): 299-318.

Birara E, Mequanent M and Samuel T, (2015). Assessment of Food Security Situation in Ethiopia: A Review. Asian Journal of Agricultural Research, 9: 55-68.

Blattman, C., & Miguel, E. (2010). Civil war. *Journal of Economic literature*, *48*(1), 3-57.

Bogale, A., and Shimelis, A. (2009). Household Level Determinants of Food Insecurity in Rural Areas of Dire Dawa, Eastern Ethiopia.African J. Food, Agric. Nutr. Dev. 9 (9): 1914-26.

Bozzoli C., Brück T. (2009), Agriculture, poverty, and postwar reconstruction: micro-level evidence from Northern Mozambique, Journal of Peace Research, 46 (3) (2009), pp. 377397

Bozzoli C., Brück T., Muhumuza T. (2016), Activity choices of internally displaced persons and returnees: Quantitative survey evidence from post-war Northern Uganda, Bulletin of Economic Research, 68 (4) (2016), pp. 329-347

Breisinger C., Ecker O. , Trinh Tan J.-F. (2015), Conflict and food security: How do we break the links? 2014–2015 global food policy report, Chapter 7

Brück T. and Marco d'Errico, (2019). Food security and violent conflict: Introduction to the special issue. World Development, Volume 117:, Pp 167-171

Bundervoet T., Verwimp P., Akresh R. (2009), Health and civil war in rural Burundi, Journal of Human Resources, 44 (2) (2009), pp. 536-563

Buom N. (2013). Determinants of seasonal food insecurity and coping mechanism in rural household in Lare district in Nuer zone of Gambella, Ethiopia. An MSc thesis, Mekele University, Ethiopia.

Bush R., Martiniello G. (2017, Food riots and protest: agrarian modernizations and structural crises, World Development, 91 (2017), pp. 193-207,

Cederman L.-E. , Vogt M. (2017), Dynamics and logics of civil war, Journal of Conflict Resolution, 91 (9) (2017), pp. 1992-2016

Chaudhuri, S., Jalan, J., & Suryahadi, A. (2002). Assessing household vulnerability to poverty from cross-sectional data: A methodology and estimates from Indonesia.

D'Souza, A., & Jolliffe, D. (2013). Conflict, food price shocks, and food insecurity: The experience of Afghan households. Food Policy, 42

De Groot, O. J., Bozzoli, C., Alamir, A., & Brück, T. (2022). The global economic burden of violent conflict. Journal of Peace Research, 59(2), 259-276. https://doi.org/10.1177/00223433211046823

DIRECT-TO-CONSUMER, G. T. (2011). United States Government Accountability Office. *Biotechnology Law Report*, *93*(1).

Ethiopia IPC, IPC Acute Food Insecurity Analysis May - September. 2021. Ipc. 2021;(2021).

EU (European Union). (2012). Effectiveness of European Union development aid for food security in Sub- Saharan Africa.

FAO (Food Agric. Organ.), IFAD (Int. Fund Agric. Dev.), UNICEF (United Nations Child. Fund), WFP (World Food Progr.), WHO (World Health Organ.).2017.The State of Food Security and Nutrition in the World 2017. Building Resilience for Peace and Food Security. Rome: FAO

FAO(Food and Agricultural Organization). (2016). Climate Change, Agriculture and Food Security. Rome, Italy.

FAO, 2016. Peace conflict and food security: What do we know about the linkages? Rome, 2016. http://www.fao.org/3/i5521e/i5521e.pdf

FAO, 2017. The future of food and agriculture: Trends and challenges. Rome, 2017. http://www.fao.org/3/i6583e/i6583e.pdf

FAO, IFAD, UNICEF, WHO, & WFP. (2017). The state of food security and nutrition in the world 2017. Building resilience for peace and food security. FAO

FAO. (2021). Monitoring food security in countries with conflict situations A joint FAO/WFP update for the members of the United Nations Security Council.

FAO. (2021). New interactive report shows Africa's growing hunger crisis. Available at: https://www.fao.org/newsroom/detail/new-interactive-report-shows-africa-sgrowing-hunger-crisis/en. Accessed 30/01/2022.

FAO. (2021). The World is at a Critical Junction. Available at: https://www.fao.org/state-of-food-security-nutrition. Accessed 06/04/2022.

FSIN & GNAFC (Global Network Against Food Crises). (2021). Global report on food crises 2021. http://https:// www.fsinplatform.org/sites/default/files/resources/files/ GRFC2021.pdf

Garba, B. G., Balogun, R. B., & Kalejaiye-MattiRB, U. N. (2020). Boko Haram terrorist induced rural-urban migration and Food Security in the Northeastern, Nigeria: An Appraisal. *International Journal of Academic Research and Development*, *5*(4), 138-144.

Garibaldi, L. (2012). The FAO global capture production database: a six-decade effort to catch the trend. *Marine Policy*, *36*(3), 760-768.

Gemechu, F., Zemedu, L., and Yusuf, J. (2015). Determinants of Farm Household Food Security in HawiGudina District, West Hararghe Zone, Oromia Regional National State, Ethiopia." *J. Agric. Ext. Rural Dev.* 8 (2): 12-8.

Girma, G. (2012). Determinants of Food Insecurity Among Households in Addis Ababa City, Ethiopia, AksumUniversity, Shire Campus Investment potentials of Ethiopia, Addis Ababa, 10(2): 159-173Zelalem F. (2014). Determinants of Food Security in the Rural Households of Meskan Woreda, Gurage Zone, SNNPR, Ethiopia. Institute of Agriculture and Development Studies, Rural Development Department, St. Mary's University, Addis Ababa, Ethiopia

Hagos Kidane (2024). Adoption of chickpea varieties by smallholder farmers in southern Tigray, Northern Ethiopia, Journal of Development and Agricultural Economics, 16(3):103-110

Hart T. (2009). Exploring definitions of food insecurity and vulnerability: time to refocus assessments. *Agrekon:* 48(4).

Humanitarian Programme Cycle. (2021). Humanitarian needs overview. Syrian Arab Republic. Issued March 2021.

IPC. (2020). Ethiopia: IPC acute food insecurity analysis October 2020–September 2021, Issued December 202

IPC. (2021). IPC acute food insecurity and acute malnutrition analysis in Somalia in January–June 2021

Khan, R. E. A., Rehman, H., & Abrar ul Haq, M. (2015). Determinants of rural household poverty: the role of household socioeconomic empowerment. *American-Eurasian J. Agric. & Environ. Sci*, *15*(1), 93-98.

Lai, C., Shieh, J. and Chang, W.-Y. (2002) 'Endogenous Growth and Defense Expenditures: A New Explanation of the Benoit Hypothesis', *Defence and Peace Economics*, 13(3), pp. 179–186. doi: 10.1080/10242690210975.

Lemma Z. & Wondimagegn M. (2014).Smallholders" Vulnerability to Food Insecurity and Coping Strategies: In the face of climate change, East Hararghe, Ethiopia. Journal of Economics and Sustainable Development www.iiste.org, Vol.5, No.24

Ligon, E., & Schechter, L. (2003). Measuring vulnerability. *The Economic Journal*, *113*(486), C95-C102.

Maletta, H. E. (2024). From Hunger to Food Security: A Conceptual History (2024 revision). *Available at SSRN 2484166*.

Manaye, A., Afewerk, A., Manjur, B., & Solomon, N. (2023). The Effect of the war on smallholder agriculture in Tigray, Northern Ethiopia. *Cogent Food & Agriculture*, *9*(1). https://doi.org/10.1080/23311932.2023.2247696

Maxwell, S., & Frankenberger, T. R. (1992). Household food security: concepts, indicators, measurements: a technical review. pt. 1. Household food security, a conceptual review/Simon Maxwell, Marisol Smith--pt. 2. Indicators and data collection methods for assessing household food security/Timothy R. Frankenberger--pt. 3. Household food security, concepts and definitions--an annotated bibliography/Marisol Smith, Judy Pointing, Simon Maxwell--pt. 4. A selected annotated bibliography on indicators with application to household food security/Barbara ....

Mequanent Muche, BiraraEndalew and TesfalemKoricho, (2014). Determinants of Food Security amongSouthwest Ethiopia Rural Households. Asian journal of Agricultural Research, 2014: ISSN 1819-1894, Malaysia,

Meseret M. (2012) Household Food Security Status and Coping Strategies in Humbo Wereda, SNNPRS, Ethiopia. International Journal of Sciences: Basic and Applied Research, Volume 6, No 1: pp 64-82.

Mesfin W. (2014). Determinants of Households Vulnerability to Food Insecurity in Ethiopia: Econometric analysis of Rural and Urban Households. Journal of Economics and Sustainable Development: 5(24): 70-79.

Misgina A. (2014). Rural household food security status and its determinants : The case of Laelaymychew Woreda, Central Zone of Tigray, Ethiopia,

Mitku, Fufa and Tadesse, (2012). empirical analysis of the determinants of rural households food security in southern Ethiopia, the case of Shashemene district

Nigatu R. (2011). Small holder farmers coping strategies to household food insecurity and hunger in SouthernEthiopia. Ethiopian Journal of Environmental Studies and Management; 4(1): 39-48.

Reno, W. (1998). Warlord politics and the African state. Lynne Rienner Publishers.

Sadik A. (2012). Magnitude and determinants of food insecurity among agro pastoral households in Jigiga districts, Somali regional state, Ethiopia. MSc thesis presented to school of graduate studies of Haramaya University..

Samre Office of Agriculture and Rural development (SoARD, 2024). Annual report of on crop production and productivity evaluation report 2015/2016 Ec production season

Save the Children International. (2017). Extreme hunger in Yemen. Press release. https://www.savethechildren.net/ news/yemen-85000-children-may-have-died-starvation startwar. Accessed on January 7/2022.

Scott, W. R. (2005). Institutional theory: Contributing to a theoretical research program. *Great minds in management: The process of theory development*, *37*(2), 460-484.

Selvaraju, R. (2013). Implications of climate change for agriculture and food security in the Western Asia and Northern Africa region. *Climate change and food security in West Asia and North Africa*, 27-51.

Sen, A. (1981). Ingredients of famine analysis: availability and entitlements. *The quarterly journal of economics*, *96*(3), 433-464.

Sen, A. (1988). Poverty and Famine: An essay on entitlement and Deprivation, oxford, Oxford USAID 1999.

Shuai, C., Li, Z., & Sun, R. (2011). IFAD projects: results and impact on poverty reduction in rural China. *Outlook on AGRICULTURE*, *40*(4), 329-336.

Stijn, V. W. (2018). Food security and armed conflict: A cross-country analysis. FAO Agricultural Development Economics. Working Paper 18–3

Tekle L. and Birhanu K. (2015). Determinants of Rural Farm Household Food Security in Boloso Sore District of Wolaita Zone in Ethiopia. Asian Journal of Agricultural Extension, Economics & Sociology, 5(2): 57-68.

Teodosijević, S. (2003). Armed conflicts and food security. Food and Agriculture Organization

Tesfaye K. (2013). Determinants of rural household food insecurity and identifying their coping strategies in Somali region of Ethiopia: the case of Gursum district. MSc thesis presented to school of graduate studies of Haramaya University.

Tigray Bureau of. Agriculture and rural development. Agriculture sector war damage short assessment report. Mekelle; 2021.

Tigray Statistics Agency. (2020). Annual macroeconomic report of Tigray regional state– Regional gross domestic product (2008EFY-2011EFY)

Tsegaye, G.(2009).Determinants of food security in rural households of Tigray region, Msc. Thesis, Addis Ababa University, AddisAbaba, Ethiopia.

UNICEF (United Nations Children's International Children's EmergencyFund). (2015)."Humanitarian appeal report". Addis Ababa, Ethiopia.

USAID (US Agency Int. Dev.). 2021. Agriculture and food security. USAID. https://www.usaid.gov/what we-do/agriculture-and-food-security#:~:text=What%20is%20Food%20Security%3F&text=

Food%20security%20means%20having%2C%20at,hunger%20or%20fear%20of%20hunger

Verwimp, P. (2012). Food security, violent conflict and human development: Causes and consequences. Working Paper 2012–016

Weldegiargis, A. W., Abebe, H. T., Abraha, H. E., Abrha, M. M., Tesfay, T. B., Belay, R. E., ... & Mulugeta, A. (2023). Armed conflict and household food insecurity: evidence from war-torn Tigray, Ethiopia. *Conflict and Health*, *17*(1), 22. https://doi.org/10.1186/s13031-023-00520-1

WFP (World Food Program) & CSA (Central Statistics Authority). (2019). Comprehensive food security and vul nerability analysis in Ethiopia. Addis Ababa, Ethiopia

WFP. Emergency Food Security Assessment Tigray region Ethiopia. 2022;(January).

WorldBank.2011.WorldDevelopment Report 2011: Conflict,Security,and Development.Washington,DC: World Bank

Yenesew S. (2015). Causes and coping mechanisms of food insecurity in rural Ethiopia, 123–133. https://doi.org/10.5251/abjna.2015.6.5.123.133.

7. Appendex

Mekelle University College of Business and Economics Department of Management

Dear sir/Madam;

I am **Werke Beyene Kahsay** currently studying Masters of Degree in Development Studies at Mekelle University. Now, I am planning to conduct research entitle with "**Post war rural household food security status, challenges and coping strategies in Tigray Region; The case of Samre Woreda,**" as a partial fulfillment of the requirement for the Masters of Arts Degree in Development Studies. This study aims to understand the exiting situation of Tigray region rural households post war food security; which expected to address the food security concerns of the study areas. Hence, your genuine information is important to get the ultimate research output and it may have impact on future food security concerns and interventions.

Statement of confidentiality: Dear respondent, the information you provide will strictly remain confidential and shall never be used otherwise other than academic interest of the researcher.

Part I: Demographic Characteristics of the Household Heads

1. **Demographic characteristics of the household**

Code: ID HH_____kebelle_____Date_____Mobile phne_____

Name of the respondent	Sex HH 1=M 0=F	Age of the HH	House hold size	HH size age range			Education in years of schooling	Involved in farm activities 1=Yes 0=No	Involved in off-farm activities 1=Yes 0=No
				<15	15 - 65	> 65			

2. Household Resource Endowment

2.1 Livestock holding. Do you have livestock? 1. Yes 0. No

If yes fill the table below

2.2 Land holding and the major crops grown

Farm land	Type of Crop	Total land holding /Tsimad/	Own	Rented in/shared in land	Rented/shared out
Main crops and vegetables or fruits farmland covered	Wheat				
	Barely				
	Teff				
	Maize				
	Sorghum				
	Vegetables/ fruits crops				
	Others				
	Total				

3. Social capital and Networking

SN	Type of group/association	Membership 1=Yes 0=No	Will the membership continue? 1=Yes 0=No
1	Multipurpose farmer cooperatives		
2	Saving and credit cooperatives		
3	Seed producing cooperatives		
4	Livestock and its products cooperatives		
5	Irrigation cooperatives		
6	Funeral association/edir, mahbers)		
7	Other, specify……		

4. Access to services

4.1 Extension services

1. Have you ever have had extension service? 1=Yes 0=No

Sn	What was the support you got	1. Yes 0. No	From where did you get the service? *
1	Training		
2	Field visit		
3	technical support		
4	Experience sharing		
5	Demonstration		
6	Information/ market, pest or disease control, technology/		

7	Other (specify)		

Nb 1Model farmer, 2.Network members, 3. Development groups and leaders 4.Tabia Development agents. 5.Woreda experts, 6. Agricultural Researchers. 7.NGOs 8. Others

4.2 Do you have access to credit 1. Yes 0. No

a. If your answer is yes, what is your source of credit _____

b. If yes, what purpose is the credit often taken for? 1 = consumption, 2 = purchase of farm inputs, 3 = purchase of household assets, 4 = pay for children's education, 5 = others, specify

c. Size of the credit taken/how much [_____]

d. If your answer is no, what are the reasons_____
_____
_____

5. Do you have savings (in formal/ informal financial institution)? 1 = Yes, 0. No

6. Do you have remittances from relatives elsewhere? [_____][1 = yes, 0 otherwise]

C . Training

1. Did you ever get training related to food security and coping mechanism? 1=Yes 2=No
2. If yes, from where did you got the training
   1. Agricultural and rural development 2. Research center
   3. Non-Governmental Organization (NGO) 4. Any other (specify) _____
3. If yes, on what area did you get training? 1. Food and nutrition related 2. Copping mechanizing for food insecurity 3. Related to nutrition 4. Other (specify)

7. Income and Expenditure

7.1 incomes

Cash income from crop sales during 2015/16

Crop	Unit	Quantity sold	Price per unit	Total
Sorghum				
Tef				
Maize				
Onion				
Tomato				
Peper				
Chickpea				
Millet				
Potato				

Other				
Total				

a. List of permanent asset and their value 2015/16

Item	Amount	Total Value	Income from sold asset
Oxen			
Cows			
Heifer			
Calf			
Sheep			
Goats			
Donkey			
Chicken			
Trees/			
Others (specify)			
Total Value			

b. Off-farm income in the last year

Activity	Income
Daily labour	
Petty trade	
Handicraft	
Remittance	
Gift	
Others, specify	
Total	

D. What is the total income of your family in a year ?_____Birr

7.2 Expenditure

A. What is the total expenditure of your family in a year? _____Birr

List of expenditure

Item	Amount of money per year
Food	
Clothing	
School fee	
Tax	
Social obligations	
Health care	
Other, specify	

II. Food security status of rural households

1. How many times your household's did eat per day? [_____]
2. How do you rate your nutrition awareness? 1 = poor, 2 = moderate, 3 = good, 4 = very good
3. Are the food items of your household's consumption readily available in a nearby market? 1 = yes, 0.No
4. What share of your household income goes to food consumption?[_____]
5. Average household food requirement in kilograms or its money equivalent per month[_____ /_____]
6. Which are the main sources of household food consumption requirements? (multiple response is possible)

   1. Own crop production 2. Own livestock rearing 3. Food purchases from markets 4. Food aids/transfers 5. All [1 to 4] are the main sources

7. If your response in Q6 is either 1 or 2,

B. Which crops do you often produce? [_____] 1 = Cereals; 2 = oil seeds; 3 = vegetables; 4 = grains; 5 = fruits; 6 = others, specify_____

C. What's your average crop harvest size in quintals? Per year[_____]

D. Which livestock types are the main sources of your household's food needs?

1. Shoats, 2. Cattles, 3. Poultry 4.others, specify_____

8. Is own production (crops & livestock) adequate to fulfill your food requirements? 1.Yes 0. No
9. If **no** in Q8, what is the household's average food gap per year?[_____ months]
10. Which of these statements best describes the food eaten in your household in the last 12 months?

1 = enough of the kinds of food we want to eat,

2 = enough but not always the kinds of food we want,

3 = sometimes not enough to eat,

4 = often not enough to eat

11. Are you worried that food would run out before you get money to buy more in the last 12 months? 1. Yes 0. No
12. If yes in Q11, how often did it occur during the past 12 months?

1 = often, 2 = sometimes, 3 = rarely

13. Was your household able to afford to eat balanced meals in the last 12 months? 1.Yes 0. No
14. If yes in Q13, how often did it occur? 1. Often 2. Sometimes 3. Rarely, 4. Never
15. Did the household income changed during the past year? 1. Increased 2. Decreased 3. remained the same
16. If food expenditure was reduced, what was reduced?

1. Quantity consumed by household members 2. Quality of food consumed; 3. Quantity of meat purchased/consumed 4. Quantity of fruits purchased 5. Quantity of vegetables purchased/consumed 6. quantity of milk purchased/consumed; 7=other_____

17. Do you purchase food on cash? 1. Yes 0. No

E. If yes, what percent of your monthly consumption expenditure? [_____%]

F. Do you purchase food on credit? [_____] [*1=yes; 0=no*]

G. If yes, what percent of your monthly food purchase? [_____%]

H. Are you in debt? [_____] [*1=yes; 0=no*]

18. How many days in the past seven days did your household eat from the following food items? (*Interviewer: include number of days only without regard to the number of times eaten per day*)

Food item	**Number of times eaten last seven days [0 - 7]**	**Nutritional equivalence**
Crop products		
Wheat		
Maize		
Sorghum		
Millet		
Barley		
Animal products		
Egg		
Milk & its products		
Meat (sheep/goat/cattle . . .		
Meat (poultry)		
Vegetables		
Fruits		
Pulses (lentils, chickpeas)		
Tubers, roots potato		
Sweets, sugar, jam, honey		
Others, specify		

N.B.: Nutritional equivalence will be computed by the researcher based on international nutritional labels of each food item consumed so as to determine the quality of food eaten by the household.

Part III. Coping strategies of rural household heads food in-secure

1 How often is your household's food security (supply, access, quality) threatened?

1= rarely; 2=sometimes; 3=often; 4=very often

2. Which of the food insecurity issues more important to your household?

1. Inadequacy of food availability 2. Inability to afford to buy food 3. Absence of accessible food markets 4. Cultural factors that limit the food consumption practices, 5. Limited nutritional awareness, 6. Others, specify_____

3. How often do you have to adjust consumption due to shocks that affect household food availability? 1= rarely; 2=sometimes; 3=often; 4=very often

4. What are the most common reasons for variation in food availability?

1=inadequacy of own production; 2=limited household income; 3=limited nutritional awareness; 4= higher food prices; 5=limited market supply; 6=lack of nearby food markets 7. Other (specify_____)

5. What are the common coping strategies adopted when household food availability is threatened?

   a. **Consumption practices related**: [1=reduce number of meals consumed; 2=consume low quality foods; 3=consume less preferred foods; 4=purchase more food from market; 5=diversify dietary practices; 6=periodic postponement of meals]
   b. **Production/farm practices related**: [1=adopt better livestock breeds and management; 2 = adopt improved seeds; 3 = participate in off farm activities; 4 = trainings and education; 5 = use of more household labour e.g., women and children; 6 = diversifying farm production activities; 7 = others, specify_____]
   c. **Household assets related**: [1=own livestock consumption; 2=sell of livestock; 3=seasonal migration; 4=sell of household assets; 5=use of household savings; 6=sell labour on/ off farm activities; 7=withdraw children from school; 8= other_____]
   d. Others [1=seek for food aid; 2=support from local support networks; 3=distress migration; 4 = begging, 5 = others, specify_____]
   e. If other reasons please mention
   _____
   _____
   _____

6. Which are the three most common food insecurity copping strategies your household employs? In order of their importance:

   1 _____

   2 _____

   3 _____

Part V. Challenges for food security

1. What are the main food security threats of your household?

1 = drought, 2 = food price increases, 3 = Conflicts, 4 = low farm productivity, 5 = narrow food menu, 6 = livestock disease/death, 7 = others, specify _____]

2. Which household members are most affected when the household is affected by food insecurity? 1 = children, 2 = women, 3 = adult male, 4 = all household members
3. What are the most post war food security challenges in your area? Mention the challenges in their ranking order.

Table. Pair-wise rank Index of the major post war food security challenges

S. No	Major challenges	Major problems												Points	Rank
		1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**		
1	Food availability														
2	Lack of access														
3	Limited awareness														
4	War														
5	Locust														
6	drought														
7	System collapse (credit, market														
8	Lack of utilities/facilities														
9	High inflation														
10															
11															
12															

4. Do you have any comment and suggestions?

_____

Thank You Very Much!!!