



**THE CONTRIBUTION OF RURAL PRODUCTIVE SAFETY NET
PROGRAM IN IMPROVING FEMALE HEADED HOUSEHOLDS'
FOOD SECURITY AND ASSET BUILDING: THE CASE OF GONCHA
SISO ENSE WOREDA, AMHARA REGION, ETHIOPIA**

**THE DEGREE OF MASTER OF ARTS IN GEOGRAPHY AND
ENVIRONMENTAL STUDIES (SPECIALIZATION: POPULATION
AND DEVELOPMENT PLANNING)**

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HAWASSA UNIVERSITY, HAWASSA, ETHIOPIA

DECEMBER, 2023

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MARGIE FENTA BAYE

**A THESIS SUBMITTED TO THE
DEPARTMENT OF GEOGRAPHY AND ENVIRONMENTAL STUDIES,
HAWASSA COLLEGE OF SOCIAL SCIENCE AND HUMANITIES,
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**IN PARTIAL FULFILLMENT OF THE
REQUIREMENTS FOR THE
DEGREE OF
MASTER OF ARTS IN
GEOGRAPHY AND ENVIRONMENTAL STUDIES
(SPECIALIZATION: POPULATION AND DEVELOPMENT
PLANNING**

DECEMBER, 2023

DECLARATION

I hereby declare that this Master of Art thesis, titled “The Contributions of Rural Productive Safety Net Programm in Improving Female-Headed Household Food Security and Asset Building in the Case of Goncha Siso Ense Woreda, Amhara Region, Ethiopia,” is my original work and has not been presented for a degree at any other university, and all sources of material used for this final thesis work have been duly acknowledged.

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This is to certify that the thesis entitled “The Contributions of the Rural Productive Safety Net Program in Improving Female-Headed Household Food Security and Asset Building: The Case of Goncha Siso Ense Woreda, Amhara Region, Ethiopia” submitted in partial fulfillment of the requirements for the degree of masters with specialization in population and development planning ,the Graduate Program of the Department of Geography and Environmental Studies and has been carried out by Margie Fenta Baye ID No GPPDPR0004/14 under my supervision. Therefore, I recommended that the student has fulfilled the requirements and, hence, here by submit the thesis to the department.

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ACRONYMS AND ABBREVIATIONS

CCT	Conditional cash transfers
CSA	Central Statistics Agency
DS	Direct Support
EARO	Ethiopian Agricultural Research Organization
FHH	Female Headed Households
GSEWCO	Goncha Siso Ense Woreda Communication Office
GSEWFSPSNO	Goncha Siso Ense Woreda Food Security & Productive Safety Net Office
GTP	Growth and Transformation Plan
HASBP	Household Asset Building program
IFPRI	International Food Policy Research Institute
NSPP	National Social Protection Policy
OECD	Organization for Economic Co-operation and Development
PASDEP	Plan for Accelerated and Sustainable Development to End Poverty
RRPSNP	Rural Productive Safety Net Program
SDPRP	Sustainable Development and Poverty Reduction Program
SLF	Sustainable Livelihood Framework
SSN	Social Safety Net
UCTs	Unconditional cash transfers
WEAI	Women's Empowerment in Agriculture Indexes
WoARD	Woreda of Office Agriculture and Rural Development

ABSTRACT

The government of Ethiopia has been running the Rural Productive Safety Net Program (RPSNP) since 2005. RPSNP is one means of reducing rural poverty. Thus, this study aims to examine the contribution of RPSNP in enhancing female-headed households' food security and asset building in Goncha Siso Ense woreda, Amhara region. The researcher used mixed-concurrent research approach to analyze both qualitative and quantitative data. It also used a cross-sectional research design. Both primary and secondary data were employed. Descriptive statistics and the econometric model were applied for analyzing quantitative data. Binary logistic regression was used to analyze factors that affect households' food security. Paired T-test was used to assess the contribution of RPSNP to the asset accumulation of the household. The findings of the study show that the main selection criterion of beneficiary of the productive safety net program was the amount of farmland available and livestock owned in the household 41.8%, 30.6% respectively. The results indicate that the main type of support from a program was monetary support in the form of cash. The majority of (67.4%) households were improved their current food security status after RPSNP intervention as compared to before RPSNP intervention. In the same way, after joining RPSNP, the livestock holdings, housing quality, farm equipment, and house equipment of these households increased. However, the main challenges of RPSNP implementation were found to be the lack of community participation in public work activities, delay in payment, and distance of payment from Kebele. The binary logistic regression models also showed that household size, farmland size, agricultural input, income, age, livestock, family labor, and agricultural shock significantly affected household food security. Finally, the study recommends that each female headed household should be encouraged to participate in non farm activities, and agricultural extension workers should introduce land-intensive agricultural production technologies.

Keywords: Asset accumulation, Female headed Household, Food security, RRPSNP.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Globally, food insecurity affects the majority of the world's population. Extreme poverty continues to overwhelm rural areas; an estimated 79 percent of those experiencing poverty live in rural areas (Shaheen *et al.*, 2017). In 2020, approximately 811 million people worldwide experienced hunger, which is a significant increase from the 161 million people who experienced hunger in 2019. As it turns out, poverty is a major social and economic issue on a worldwide scale. In developing nations where women make up a sizable portion of the population, food insecurity and undernourishment are severe problems (Asrat & Anteneh, 2020).

Africa continues to be the world's most rural continent, with 60% of the people still residing there. The majority of rural residents rely on food system activities, particularly primary production, for their livelihoods (Hall, *et al.*, 2015). According to FAO, (2021) report on food insecurity, by 2020, 2.37 billion people world wide without access to sufficient food, a rise of 320 million in a single year (Toma *et al.*, 2023). South Asia and Sub-Saharan Africa continue to have the highest rates of hunger among all geographical areas (Enahoro *et al.*, 2019).

Ethiopia is one of the poorest countries in the world, with an annual per capita income of \$883, as estimated by the government (Mulu, 2021). It has a population believed to be living below the poverty line (UN, 2018). Ethiopia is one of the world's most hungry nations, ranking 90th out of 116 nations in the Global Hunger Index. In addition, a United Nations assessment estimates that 22 million people will require food assistance in 2022 (Mengistu & Kassie, 2022). Food insecurity is a problem that is particularly acute in rural regions due to a number of factors, such as rapid population growth, low agricultural productivity, a lack of sustainable food security policies, macro-economic instability, and erratic agricultural product pricing (Ahmed, 2013). Due to this, for a lot of program implementers in developing nations, reducing poverty and enhancing household well-being are crucial issues in achieving their development goals. The Ministry of Finance and Economic Development stated that the

sluggish economic growth is not quick enough to reduce extreme poverty in the country (Kassahun *et al.*, 2022).

According to Tessema (2011), food insecurity has emerged as one of the hallmarks of rural poverty, particularly in Ethiopia's drought-prone regions. One of the primary elements of the nation's comprehensive food security program is the "Productive Safety Net Program" (RPSNP). The World Bank extended its own definition to include interventions against chronic as well as transient poverty. Programs known as "productive safety nets" shield an individual or household from two unfavorable welfare consequences: chronic incapacity to work and earn (chronic poverty) and a decline in this capacity from a marginal situation that provides minimal livelihood for survival with few reserves transient poverty. (WFP, CSA, 2014).

According to WFP (2014), safety nets are a type of social protection meant to prevent poverty, and the risks that come with their social safety net program provide predictable and consistent help in the form of food, money, or vouchers to people who are at risk of poverty. The Rural Productive Safety Net Program has been around since 2005. In order to close the household food gap, stop home asset depletion, and increase community assets in emerging nations.

The program is available to households in Oromia, Harari, Dire Dawa, Amhara, Afar, Somalia, Tigray, and South nation nationalities and peoples that experience both temporary and chronic food insecurity (Habib, 2022). According to Mekonen, (2013), female-headed households need special consideration because they are frequently discriminated against by cultural norms, have limited access to land, labor, credit, and insurance markets, and experience high dependency burdens, economic immobility, and the "double day burden" of being the household's head. Women's homes experience financial instability. Ethiopian women, especially female heads of households are particularly crucial in ensuring the livelihood of their household. Additionally, the widowed and women living as FHHs were primarily held accountable for the deaths of their spouses based on their gender and marital status. Ethiopia's government has worked to involve women more in decision-making over the years in an effort to support the achievement of the nation's sustainable development targets (Wondimu *et al.*, 2022).

Amhara region is one of the national regional states of Ethiopia. It is categorized as a food-insecure regional state due to its high susceptibility to frequent shocks and droughts (Arega, 2012). There are 169 woredas in the area, 48 of which are prone to drought and persistent food shortages. The Amhara region has 23 million inhabitants, 89 percent of who reside in rural area and agricultural households (CSA, 2023). Because they are so dependent on agriculture, rural female headed households are the most susceptible. More than 80% of the land that is cultivated and 85% of all crops are produced using cereals (Agegnehu, 2015). The largest national social protection program is RPSNP. The purpose of RPSNP is to assist food-insecure households and give them the tools they need to overcome vulnerabilities without losing their assets over time. With an estimated increase to ten million people, it had assisted more than seven million people in 2015 (Cochrane & Tamiru, 2016). The government "established the Food Safety Program and the RPSNP socially started combating food insecurity (Lukas & Mandado, 2018).

Goncha Siso Enese woreda is considered to be chronically food insecure. Due to the rapid growth of population, mountainous and hilly topography, low and declining agricultural productivity, continuing food insecurity, and rural poverty, these are the common problems in the study area. However, recently, the problem of food insecurity has been addressed through RPSNP (Ayalew *et al.*, 2019). Although, so far, no sufficient documented information has been available on the contribution of RPSNP to improving female-headed households' food security and asset accumulation in the study area. Therefore, this study investigates the contributions of the productive safety net program in improving female-headed households' food security and asset building in Goncha Siso Enese woreda.

1.2 Statement of the Problem

Ethiopia is one of the nation's most hit by hunger and food insecurity. Both temporary and chronic food insecurity have a significant impact on a highest percentage of people in the country (Asrat & Anteneh, 2020). The situation of chronically food-insecure people is becoming more severe. Ethiopia's food security problem is closely related to the nation's ongoing famine and food shortages, which are due to persistent drought. According to Kassegn & Endris, (2021). 41% of the Ethiopian population lives below the poverty line,) and 31 million people are undernourished. The majority of Ethiopians, more than 80%, live in rural areas and are heavily dependent on rain-fed agriculture.

Almost half of the population in rural Ethiopia, which accounts for 51.5% of the population, were women (Hundie & Tulu, 2021). 85% of women reside in rural areas. They participate in a range of activities, both on and off the farm. Ethiopian rural women contribute significantly to food security and agricultural production. RPSNP supports women in many ways, and they consider that the RPSNP gives more attention to women than men (Beyoro, 2016).

In the Amhara Region, Goncha Siso Ense Woreda is particularly susceptible to food insecurity (Kadlečíková *et al.*, 2017). Due to the traditional farming methods, the challenging topography, small and dispersed farm sizes, rain-fed farming, and severe environmental degradation all contribute to food insecurity among the residents of this woreda (Mekonnen, 2013). A Rural Productive safety net program has been in place since 2008 in the woreda (Wondimagegnhu & Bogale, 2020), yet the majority of female-headed households continue to experience food insecurity. Most of them lacked the farmland necessary to produce enough food for their families each year.

The findings of various studies may differ as the area of study, time, and methodology employed. There are a number of studies on the impact of RPSNP on food security in Ethiopia at the household level, both for RPSNP beneficiaries and non-beneficiary households. Few researchers focused on urban female-headed households and did not include rural women for example According to Yirga (2021), assesses the contribution of the urban productive safety net program to the food security of female-headed households in woreda Six, Yeka Sub City, Addis Ababa City Administration, Ethiopia, The results show that the Urban Productive Safety Net Program has a significant contribution to make in improving the income per adult equivalent per day of urban female-headed households. In addition, those different studies, which focused on women and men, also continued to treat women as poorer than men and as victims of food shortages.

According to Mekonnen, (2013), assessed Food Security, Gender and Community Relations Challenges and Strategies of Rural Women in Goncha Siso Enese Woreda, Ethiopia, and the Role of the Productive Safety Net Programme in Empowering Women. Findings of the study has shown that female headed households were more disadvantageous and vulnerable position than male head households the focus on FHH's stems from the fact that they have higher levels of poverty, compared to male-headed households. Lower level of education, limited possibilities to learn new skills and purchase inexpensive technology, and a lack of

direct access to resources like land, finance, and credit all have the potential to render life more challenging for female-headed households. Therefore, gender differences in access to economic opportunities put female-headed households at a disadvantage position via those with male headed households.

According to Mume *et al.*,(2022) assessed the impact of Rural Productive Safety Net Programme and Its Impact on the Livelihood of Rural Households in Doba District, Ethiopia .Its results showed that in RPSNP member homes, as compared to non-participant households, the RPSNP boosted total annual income by 39% and calorie intake by 8.4%. Besides this Hermela (2015) studies result shows that RPSNP plays a great role in preventing depletion of livestock assets, increasing household income and reducing poverty by enhancing asset accumulation. However, this study focused on the contribution of RPSNP beneficiary in female headed household food security status before and after RPSNP intervention. However, this study focuses on the contribution of RPSNP beneficiaries to female-headed household food security status before and after RPSNP intervention.

1.3 Objectives of the Study

1.3.1 General Objectives of the Study

The general objective of this study was to assess the contribution of the rural productive safety net program in improving female-headed household food security and asset building in Goncha Siso Ense woreda.

1.3.2 Specific Objectives of the Study

- To examine the implementation of RPSNP in the study area
- To analyze the contributions of RPSNP on female-headed households' food security status, food access, availability, utilization and stability
- To examine the contributions of RPSNP on female-headed households' asset accumulation
- To identify the challenges of RPSNP implementation to contributions on households' food security status

1.4 Research Questions

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

1. How the RPSNP is implemented in the study area?
2. What are the contributions of the RPSNP on households' asset building?
3. What are the contributions of the RPSNP on households' food security status, food access, availability, utilization and stability?
4. What are the challenges of RPSNP implementation towards the contributions of households' food security in the study area?

1.5 Significance of the Study

The study contributes to the body of existing knowledge and also makes up for the paucity of scholarly papers in Ethiopia on rural productive safety net program and food security. In addition, this study is important reference material for future academic researchers. The study might serve as a stand point for other related studies and help as a reference for other studies in the area with similar or other themes of study. The improvements in the program's implementation primarily benefit poor women by helping them secure food for their households and combat food insecurity to enhance sustainable development. The rural productive safety net program prioritizes the contribution of the safety net to households, food security, income generation, poverty alleviation, asset holdings, and household resilience. The impact of RPSNP on improving FHH research was used to contribute to the improvement of a program in alleviating FHH food insecurity in the study area. Moreover, this research used significant sources for information and terms of reference for policymakers and planners, government sectors, researchers and educational institutes, and development experts. This study is used to guide the way of intervention by interested stakeholders in GOS and local and international NGOs as a whole to make the intervention effective in minimizing food insecurity and poverty.

1.6 Scope of the Study

The study was conducted with a geographical, thematic, methodological, and temporal scope. This study was geographically conducted in Goncha Siso Ense woreda, the East Gojam zone, and the Amhara region, Ethiopia. The thematic scope of study is to examine the contribution of the rural productive safety net program in improving female-headed households' food security. Started the program from 2008 to February 2023. The study emphasized the food

availability, food accessibility; food utilization and stability of female-headed households, the variables that affect household food security status were household size, farmland size, agricultural input, income, age, livestock, family labor, and agricultural shock. the methodological scope of study was employed cross-sectional research designs with quantitative and qualitative approaches. The data collection instruments were questionnaire, interview, focusing group discussion, and observation. Data sources include both primary and secondary sources. Purposive sampling techniques were employed to select the woreda because Goncha Siso Ense woreda is a food-insecure woreda in the east Gojjam zone. Four kebeles were chosen from this woreda for different ecological zones of Kola and Dega. The sample size was 205 female-headed households. Finally, temporally the study covered the time period from November 2022 to November 2023, within a year.

1.7 Limitation of the Study

During this study, different challenges which have possibility of bringing adverse effects on the results of the study. The researcher faced some problems in the study area. These were involuntary and unwillingness of some respondents to provide the required information which rare the most common issues. Shortage of finance played their great role to under weigh the results of this study. However, regardless of these challenges, the researcher tried best to overcome them and finally succeeded in finding strong claims for each result and overcome those limitations by providing different mechanisms such as the researcher being polite and awarding the purpose of data collection for academic purposes for respondents and recive money from family members.

1.8 Definition of key Terms

Chronic food insecurity: Households that are regularly unable to produce or purchase enough food to meet their food needs, even during times of normal rain are considered chronically food insecure (Woldie, 2020).

Food security :is defined as access by all people at all times to sufficient food for an active and healthy life (New Coalition for Food Security) (Woldie, 2020).

Household Head: is the head of the house either male or female that is responsible to administer and manage the whole family members (Woldie, 2020).

Household Productive Asset: a tangible thing which can be used in a productive way, either self - producing or to produce something of value. Examples of self- reproducing assets are animals and crops; producing assets include land, family labor and rentable house (Woldie, 2020).

1.9 Organization of the Study

This thesis has organized into five chapters. The first chapter is about the introduction, which includes the study's background, the problem statement, the research objective, the research question, the significance of the study, the delimitation, and definition of key terms. The second chapter presents a review of related literature. Chapter three deals with research design and methodology, including the source of data, the study population, sample size and sampling technique, the procedure of data collection, the tools of data gathering, and the method of data analysis. The fourth chapter presents data presentation, analysis, and interpretation. The final chapter contains a summary, a conclusion, and a recommendation.

CHAPTER TWO

LITERATURE REVIEW

2.1 Conceptual Literature Review

2.1.1 Definition and Concept of Productive Safety Net Program

Productive safety nets are a component of social protection aimed at combating poverty and the risks of poverty. A social safety net is a program that offers people who are at risk of poverty, food insecurity, or other forms of deprivation consistent and dependable support in the form of food, cash, or vouchers (Devereux, 2016). The Rural Productive Safety Net Program is Ethiopia's rural safety net for food-insecure households. The Rural Productive Safety Net Program started in 2005 in Ethiopia. The program covers Afar, Amhara, Dire Dawa, Harari, Oromiya, Southern Nations, Nationalities, and Peoples, Somalia, and Tigray, and targets households that are chronically and transitorily food secure (Devereux *et al.*, 2006). One of Africa's largest national social protections programs, the overall goal of this program is to address predictable food insecurity through the invention of a program that aims to enhance home resilience and adapt to various shocks. Taking these considerations into account, we support the continuation of the program; it has been developed and "for the improved people (Mohamed, 2017).

2.1.1.1 Components of RPSNP

The RPSNP operates in two ways: through public works and direct support (Mussa, 2017). **Public works** are labor-intensive community-based activities designed to address the underlying causes of chronic food insecurity through the provision of employment for chronically food insecure people who have able-bodied labor. Public Works, the larger of the program, employs selected beneficiaries for five days per month on labor-intensive projects designed to build community assets. Public Works, the larger of the two program, employs selected beneficiaries for five days per month on labor-intensive projects designed to build community assets (Dladla, 2023).

Direct support: Direct support in the form of cash or food transfers is provided to labor-scarce households; including those whose primary income earners are elderly or disabled, in order to maintain the safety net for the poorest households that cannot participate in public works. People who are unable to engage in public works, such as the elderly or crippled, in

order to preserve the safety net for the poorest household (Berhane& Hirvonen 2018). Physically disabled, mentally ill, and temporarily unable to work, Women in male-headed and female-headed households, Cash or food transfers are provided to labor-scarce households (Gilligan *et al.*, 2009).

2.1.1.2 Program Beneficiary Eligibility

To be eligible for RPSNP transfers, households must live in a chronically food insecure area. The eligible woredas were defined by the government based on the frequency with which they received food assistance. However, local-level (district and community) food security task forces are responsible for organizing the beneficiary selection process. Program beneficiaries are selected at the community level through the following targeting criteria: (i) households should be members of the community; (Households ought to be involved in the community; (ii) those with a history of ongoing food insecurity food shortages (3 months of food gap or more per year) in the last 3 years; (iii) households who suddenly become more food insecure as a result of a severe loss of assets (financial, livestock, means of production, assets), especially if linked to the onset of severe chronic illness, such as AIDS; and (TV) households without sufficient family support and other means of social assistance and protection (Hoddinott, *et al.*,2013).

Woredas often have comparable program qualifying requirements. However, not all eligible households in the eligible districts were included in the program due to limited quotas and limited resources; rather, they were further refined using the community-based selection criteria of the districts. The following community-based extra criteria were used by the RPSNP clients to further refine their targeting in addition to the key criteria mentioned above: (a) the state of the household's assets, such as its quantity and quality of land, food supply, labour pool, etc.: (a) status of household assets: land holding, quality of land, food stock, labour availability, etc.; (b) income from agricultural and non-agricultural activities; and (c) specific vulnerabilities such as female-headed households, elderly households, households caring for orphans, etc. (Muhammed, 2021).

2.1.2 Concept of Food Security

Food security as a concept, originated in the early 1970s, during the time of the global food crisis. Due to its broad definition of food production, distribution, and consumption, food security is a challenging issue to quantify. Conversely, food insecurity is easier to quantify

and analyze. Food insecurity, on the other hand, lends itself more readily to measurement and analysis. According to the Hwalla *et al.*, (2016) the concept of food security is defined as physical, social, and economic access by all people at all times to sufficient, safe, and nutritious food that meets the dietary needs for an active and healthy life. This definition shows that food security can be ensured if and only if the required conditions are fulfilled. These conditions include the stability of food, access to food, the availability of nutritionally adequate food, and the biological utilization of food. It is important to emphasize that hunger, famine, and food security are not the same thing. Food security is the state of having access to food. refers to the availability of food, whereas famine and hunger are the consequences of the non-availability of food; in other words, the results of food insecurity (Ehikwe & Atser, 2020) were officially defined for the first time in the 1974 "World Food Summit", which adopted the Universal Declaration of the Eradication of Hunger and Malnutrition.

Actually, the idea of food security was centered on guaranteeing the supply of food and the consistency of the prices of staple goods, which was due to the extreme volatility of agricultural commodity prices and turbulence in the currency and energy markets at that time (Peng, 2019). Moreover, household food security requires pleasing social and health conditions to ensure the availability and access to food among household members and optimal physiological utilization by individual household members of nutrients contained in the food (Carletto *et al.*, 2013). From the given definition, there are four basic pillars or dimensions of food security, those pillars are food availability, accessibility, utilization, and stability.

Food Security Dimensions: there are four dimensions of food security: food availability, food accessibility, food utilization, and stability(Anderson & Elisabeth, 2015).

Food availability is the state in which sufficient and suitable food is physically or materially present. Food availability is determined by the amount of food produced, stock levels, and net trade. According to (Ingram, 2011), a sufficient quantity of suitable, essential food types is produced domestically. Food supplies, commercial imports, and commercial assistance programs are always available to people or are in close proximity to them.

Food accessibility: refers to a household's ability to receive food through purchase or self-production. (Tschirley & Weber, 1994) was found a strong correlation between household

income and food access. The level of household spending, income, and costs establishes the food access level. Meal utilization is tied to making use of food through a healthy diet, water, sanitary conditions, and medical attention in order to achieve a level of nutritional well-being for which all bodily requirements are satisfied. In general, utilization, according to (Carletto *et al.*, 2013), refers to the procedure for actually storing, preparing, and eating food, as well as obtaining nutritional advantages brought about by consuming.

Food utilization: It describes the consumption and breakdown of sufficient, high-quality food for the preservation of health. This is the appropriate biological use of food, requiring a diet rich in energy and essential nutrients, together with skills in food preparation, child care, and illness management (Jrad *et al.*, 2010). (Anderson & Elisabeth, 2015) defined food utilization as the nutritional advantages of eating food, which are contingent upon appropriate food preparation, storage methods, and nutrition knowledge, as well as the availability of sufficient health and sanitation services. Therefore, eating habits are closely linked to hygiene, health, and nutrition.

Food Stability: Food stability is the capacity to consistently get and use the right amounts of nutrient-rich food. It indicates the duration of food security. Food insecurity is shown by irregularly having insufficient access to food. (Kralovec, 2020) state that various causes, including political instability and food stability, are influenced by unfavorable weather, unemployment, and food prices. Eats generally speaking, food security is the reverse of insecurity. Food insecurity may be persistent or transitory based on how long something happens. Since a persistent long-term food deficiency causes food insecurity, which is referred to as transitory when it occurs in the short term.

2.1.3 Concept of Food Insecurity

The inability to obtain food or to live is what is known as food insecurity. By the inability to live a healthy life, feeling unsatisfied, and not being able to obtain adequate food (Beyene & Muche, 2010). Limited or uncertain availability of nutritionally adequate and safe food or limited or uncertain ability to acquire acceptable foods in socially acceptable ways is the definition of food insecurity. Food insecurity is present whenever there is unpredictable physical and financial access to food that is enough, secure, and nourishing for everyone. Food insecurity can be described as when a person lacks regular access to enough safe and wholesome meals for regular development and growth as well as an active and healthy life

(Akparibo *et al.*, 2021). Rural areas nowadays are particularly vulnerable to food insecurity due to a number of factors, such as rapid population expansion, low agricultural productivity, a lack of policies that ensure long-term food security, macro-economic instability, and swift price changes for agricultural products (Ahmed, 2013).

2.1.3.1 Factors of Food Security

Food insecurity is a function of environmental crises, rapid population growth, poor asset base, socio-cultural issues, and poor access to markets and infrastructure. Hence, in this sub-topic, it is attempted to review relevant literature, particularly conducted in Ethiopia.

2.1.3.1.1 Demographic Factors

The population of Ethiopia is rising from time to time. Currently, the Ethiopian population is about 115 million, which grows by 2.6%. The average household size is also large when compared with other sub-Saharan countries. At the microlevel, household size is one of the factors expected to have an influence on the food security status of households (Ayelign & De Saeger, 2020). The majority of farm households in Ethiopia are small-scale semi-subsistence producers with limited participation in non-agricultural activities since land holding size and financial capital to purchase agricultural inputs are very another demographic factor that strongly influences household food security. Independently conducted in different parts of rural Ethiopia, came to the common conclusion that the livelihood of female-headed households was disadvantaged when compared with their male counterparts (Berihun, 2014).

2.1.3.1.2 Environmental factors

The combined effect of land-based resource degradation like deforestation, soil erosion, flooding, and loss of agricultural and pasture land leads to production decline (Melese, 2016). Rapid population growth and recurrent drought are causing serious resource degradation. (Ahmed *et al.*, 2023) described that the seriousness of the shortage of productive (fertile) land in the highland areas, coupled with population pressure, has forced the cultivation of the steep and moderate slopes, which are highly degraded because of soil. Climate is one of the important elements of the natural environment that positively or negatively affects the food security status of rural households. Numerous studies have revealed that inconsistent and insufficient rainfall is among the factors causing food crises in many rain-fed farming and

drought-prone areas across the world. In Ethiopia, more than 95% of food grain production is from rain-fed subsistence farms (Fikire & Bekele, 2014).

2.1.3.1.3 Access to Infrastructure

Access to infrastructure such as market centers and roads promotes livelihood diversification and agriculture intensification. Adequate infrastructure, especially main and feeder roads that improve access to necessary inputs fertilizer, seed, pesticide chemicals, and other agricultural implements is indispensable (Banson *et al.*, 2016). Although the current government has made significant progress, particularly in road development, the sector is still weak even compared with the African average. Due to a lack of proper and on-time transportation facilities post-harvest, total production losses reached up to 30%. Generally, as indicated in much literature, inadequate infrastructure and social service development such as roads, transportation, communication, electrification, education, health services, and agricultural services would be major challenges to sustaining the growth of agricultural production and food security (Ferrão *et al.*, 2018).

2.1.3.1.4 Conflict

Another reason that drives farmers to fight in conflicts or escape their land is conflict. When adversaries cut off food supply in an effort to gain ground, food can be used as a weapon. Fighting can also result in crop destruction. Food scarcities have sparked unrest and hostilities. There has been fighting in the South Sudan region for many years, resulting in food insecurity for four million people. Conflict over rights to land and grazing has prolonged in the Darfur region (Sekhampu, 2013).

2.1.3.2 Food Security Measurements

To assess the food security status, there are a number of measurement tools available of Household. They differ based on the assessment. Likewise, a combination of tools was used to generate data. In this study, the three food security measurements were applied: the household food insecurity access scale and the food consumption score and reducing the coping strategy index. It is important to measure food security at different levels so as to characterize the severity of the food security problem in a given area and to make basic information available for measuring impact. However, as the issue of food security is multi-dimensional, complex, and requires different levels of consideration, there is no permanent

rule as to which method to use in measuring it. Hence, the decision to rely on different factors for example, resource and time restrictions, the study's goals, the data's accessibility, the users' types, and the necessary level of accuracy.

1. Household Food Insecurity Access Scale (HFIAS)

The Food and Nutrition Technical Assistance (FANTA) Project and its partners have developed a list of questions for the Household Food Insecurity Access Scale (HFIAS). Generic questions on the household food insecurity access scale are used to separate families with and without food security. The Household Food Insecurity Access Scale is made up of nine "occurrence" questions, which represent a generally increasing level of food insecurity (access), and nine "frequency-of-occurrence" questions, which are asked as a follow-up to each occurrence question to find out how frequently the condition occurred. If the respondent states that the situation mentioned in the relevant occurrence question were not encountered in the preceding four weeks (30 days), the frequency-of-occurrence question is skipped. Some of the nine occurrence questions inquire about the respondents' perceptions of food vulnerability or stress (e.g., did you worry that your household would not have enough food?) and others ask about the respondent behavioral responses to insecurity (e.g., did you or any household member have to eat fewer meals in a day because there was not enough food (Atara *et al.*, 2020).

The questions address the situation of all household members and do not distinguish adults from children or adolescents. All of the occurrence questions ask whether the respondent or other household over the course of the preceding four weeks, participants either felt a certain way or engaged in a particular behavior. The method is based on the experience of food insecurity (access) causes predictable reactions and responses that can be captured and quantified through a survey and summarized on a scale. The HFIAS indicator categorizes households into four levels of household food insecurity (access): food-secure, marginally food insecure, moderately food insecure, and severely food insecure. Households are categorized as increasingly food insecure as they respond affirmatively to more severe conditions and/or experience those conditions more frequently (Atara *et al.*, 2020).

2. Food consumption score (FCS)

The food consumption score (FCS) is based on factors like dietary variety, food frequency, and the relative nutritional relevance of various food groups. When calculating the composite score, the relative nutritional significance of the food groups is taken into consideration as a weight (WHO, 2011). In order to calculate the food consumption score for each household, (WFP, 2008) states that 1) food items must be divided into 12 standard food groups with a maximum consumption frequency value of 7 days/week; 2) the consumption frequency of each food group must be multiplied by the nutrition content-based weight assigned to each food group; and 3) the resulting values must be added up to obtain the food consumption score (FCS) (Atara *et al.*, 2020).

3. Household reducing coping strategy index

This is a method conducted based on household responses employed during food shortages. The individual in the household who is more knowledgeable and responsible (in most cases, a woman) for preparing and serving meals is asked different questions concerning how the household responds to threats of food shortages. The benefit of this method is that it is easy to train data collectors to ask respondents these kinds of questions, and it directly captures notions of adequacy and vulnerability: currently, is there enough food to eat? It also directly captures the vulnerability of households, with more vulnerable households being more likely to be poor and more susceptible to destitution (Atara *et al.*, 2020).

2.1.4 The Concepts of Asset Building

As a general concept, assets are rights or claims related to property, both tangible and intangible, that have the potential for positive returns (Sparr & Moser, 2007). One significant measure of welfare is asset ownership. Purchasing assets may be a sign that a household's standard of living is rising. Conversely, the depletion of assets would mean a decrease in household wealth and, consequently, in welfare. In light of the data that may be gathered from homes, possession of particular goods would include furnishings for the home, farm equipment, both conventional and contemporary, equipment for entertainment and communication, durable goods for the home, and a few other things like axes, motorbikes, and jewellery. One significant determinant of welfare is asset ownership. More specifically, a farmer's household asset can be assessed as: Livestock assets include cattle, sheep, goats, cows, and oxen. Productive assets include all assets used to produce crops and livestock, like

water pumps, sickles, spades, carts, pickaxes, and axes. Household assets include a stove and other cooking materials. Consumer durable assets include a telephone, radio, bed, home, bicycle, etc. So that household asset accumulation means an increase in the real value of all types of assets over a specified reference period, usually the period of time for which a program or an intervention that is expected to bring asset accumulation is implemented (Chekol & Mazengia, 2022; Woldie, 2020).

2.1.5 Rural Poverty in Ethiopia

Rural poverty is defined as poverty in rural areas, including the social, economic, and political aspects that contribute to such poverty. Due to their dispersed population, rural communities often have less well-maintained infrastructure and more difficult access to markets. Spatial inequality and rural poverty are both worldwide issues, but like other forms of poverty, rural poverty is more prevalent in emerging nations than in industrialized ones. Three-quarters of the world's poorest people, most of whom are smallholder farmers or agricultural laborers, whose livelihoods are mostly dependent on agriculture, reside in rural areas, according to the FAO (2018). Extreme weather can have a negative impact on food systems and is projected to have a greater impact as a result of climate change. The Ethiopian Central Statistical Agency's assessment of the 2012–2013 household's consumption, income, and expenditure (HICE) Survey results shows the majority of people in Ethiopia are living in rural areas (83%), where poverty is more widespread (Weldegerima, 2018).

In comparison to metropolitan areas nationwide, poverty status among households in rural areas is a more serious issue (World Bank, 2012). Many people are currently struggling with deeper food and non-food insecurity in both urban and rural areas of the nation. Ethiopia is Sub-Saharan Africa's largest country by population and the 11th poorest country in the world. Second most populous, with a population size of about 90 million in 2015/16 and 2.5 percent growth per annum (Eyasu, 2020)). The vast majority (84%) of which are rural dwellers and subsistence farmers (Eyasu, 2020). Half of the food insecure population of Sub-Saharan Africa is found in Ethiopia, which is one of the seven food insecure countries in Sub-Saharan Africa.

According to the 2017 World Bank rankings, Ethiopia is a low-income country, coming in at 164 out of 187 (Mekuriaw & Harris-Coble, 2021; Yehualashet, 2020). The nation has been

executing a number of development program aimed at reducing poverty and achieving economic growth. One of these is agricultural expansion and investments, as this sector employs the majority of people, accounts for around 40% of output and exports, and contributed 37% of GDP in 2015–16. Poverty decreased by 0.15 percent as a result of GDP. For every 1 percent in agricultural output, poverty was reduced by 0.9 percent. Since female farmers are less productive than their male counterparts, they do not gain as much from Ethiopia's agriculture, which is a key engine of economic growth and quick poverty reduction (Mulema & Damtew, 2016).

2.2 Theoretical Literature Review

With the advancement of the food security concept or issue to the mainstream development agenda, there are various theories or approaches that provide explanations on different aspects of it, such as how and at what level its analysis, measurement, and focus should be. According Burchi and De Muro (2012), it is crucial to consider how food security is conceived, assessed, and eventually analyzed because it has an impact on the type of policies that should be implemented. A few of these theories of food security are briefly discussed (Aurino, 2013; Burchi & De Muro, 2012).

2.2.1 Food Availability Decline

Food Availability Decline (FAD) is considered the oldest and still functional theory whose origin is, arguably, traced back to Thomas Malthus's work of 1789. As it goes in Malthusian tradition, the focus of this theory is on the disequilibrium between population and food and argues that in order to maintain equilibrium, the rate of growth of food availability should not be lower than the rate of growth of population (Burchi & De Muro, 2012). However, Degefa (2004) disaggregates the FAD theory into two sets of theories: climatic theories that link food shortages with natural calamities such as floods and droughts, and demographic theories that focus on the nexus between food availability and population growth. The climatic theories link food insecurity with such natural causes as drought and flooding. Climatic variables can lead to famine, especially in rain-fed agricultural areas, by causing crop failure as well as adversely affecting other assets of livelihood among subsistence farmers (Degaga, 2005). In terms of the level of analysis, the focus of food availability theory is at the macro level, including the whole globe and a particular sector such as the agricultural sector. When it

comes to measurement, the Food Balance Sheet is a commonly utilized tool for food availability assessment (Burchi & De Muro, 2012; Lele *et al.*, 2016).

2.2.2 Income-based approach

An income-based approach emerged as a critique of FAD, whose focus is, as claimed, narrowly on agricultural production. The FAD approach has been criticized for losing sight of the interdependent nature of various sectors of the economy and viewing food insecurity as the problem of the agricultural sector or production alone (Burchi & De Muro, 2012). However, the problem with this approach is the difficulty of getting reliable income or expenditure data in the subsistence agricultural economy, where people get part or all of their food from their own production (Baiphethi & Jacobs, 2009). A related problem of the income-based approach, as argued in Burchi and De Muro (2012), is that it requires making several assumptions to logically move, step-by-step, from income or expenditure to food security. That is, to move from income or expenditure to food through price per unit information, then from food to calories through equivalence tables, and lastly, from calorie availability to food security or insecurity, depending on the threshold.

2.2.3 Entitlement Approach

According to Degefa (2001), the origin of this approach, which is also considered the Food Entitlement Decline (Sen, 1981). It emerged as an alternative to FAD and argues that food availability in the economy or in the market does not necessarily entitle a person to consume, and famine can occur without a decline in aggregate food availability. (Sen, 1981) describes this approach as “the entitlement approach focuses on each person's rights to commodity bundles that include food and sees starvation as the outcome of not having a right to a bundle that includes enough food. It matters how food security is theorized, assessed, and eventually analyzed because this has an impact on the types of policies that should be implemented. In the paragraphs below, a few of these theories of food security are briefly discussed. According to (Burchi & De Muro, 2012), the groups that mostly face direct entitlement failure are food producers, and those who are exposed to trade and/or indirect entitlement failures are producers, and those who are exposed to trade and/or indirect entitlement failures are producers of commodities other than food when their terms of exchange fall or when the total availability of food declines.

2.2.4 Sustainable livelihoods approach

The Sustainable Livelihood Framework (SLF) is a general approach to the analysis of development issues such as poverty and food security. According to (Burchi & De Muro, 2012), the emphasis on livelihood started in the 1980s, who introduced the basic elements of this approach with a focus on rural development and poverty. It defines livelihoods as "the assets (natural, physical, human, financial, and social capital), the activities, and the access to these (mediated by institutions and social relations) that together determine the living gained by an individual or household (Devereux *et al.*, 2004). Maxwell and Smith (1992) quoted), who defined livelihood as having enough food and cash on hand to meet basic requirements and who connected sustainability to the long-term preservation or improvement of resource productivity "Livelihood comprises the capabilities, assets (stores, resources, claims, and access) (Maxwell, 1996; Yaro, 2004).

2.2.5 Feminist theory

Feminist theory is founded on the statement that (Ropers-Huilman & Winters, 2011). Every area of the world can benefit from the contributions of women. Women have faced discrimination and oppression, which has prevented them from reaching their full potential, enjoying success, or participating fully in society. Feminist studies should aim to change society rather than just criticize it. Marxist feminists, whose thinking is based on Engels and Marx's thoughts, believe that women's subordination position in society emanates from their economic control. Engles argued that "men's control of women is rooted in the fact that he, not she, controls the property (Sultana, 2010). It is very true that women's denial of access to and control over productive resources suppresses their social and political lives. In Ethiopian societies, which are predominantly patriarchal, women often hold low social status and are exposed to abuse of power because of their economic dependency on men. Land, the basic source of wealth, for example, is in the hands of men. Marxist feminists explained women's oppression and subordination in relation to their work status. They believe that "women's work shapes women's thoughts and thus female nature. Women's confinement in domestic activities limits their access to information and understanding of the world. Women in Ethiopia, because of their low level of education and most of them being housewives with tedious household chores, do not have time to access information. Most of them do not even know the rights they have been guaranteed by the constitution and other legal provisions.

2.2.6 Neo-Malthusian Theory

Neo-Malthusian theory argues that food security and sustainable development are intrinsically linked (Ross, 2017). Food security exists if a household has a supply available and means to get adequate food to meet the nutritional needs of its members (Campbell, 1991; Fawole *et al.*, 2016). Argue that high fertility and population growth lead to ecological overshoot in terms of over cultivation, excessive fertilizer use, deforestation, desertification, and soil degradation, all of which should undermine food security (Cohen, 1995). These variables are sometimes gauged by the density of the rural labour force, which is normed against measures of arable land termed agrarian adversity. Increased age dependency (essentially expanded household size owing to high fertility) is especially detrimental in rural areas because this pressures rural households to put marginal land into production and intensifies land use, thus degrading the soil and reducing agricultural output, thus undermining food security. Rural and total population growth do not affect food security but slow down ward change in fertility and increased age dependency, reduce food supply, and contribute to hunger (Jenkins & Scanlan, 2001). All theories that listed above are relevant for this study, But Such as Feminist theory, Neo-Malthusian theory very important.

2.3 Empirical Literature Review

Several empirical findings demonstrate the impact of RPSNP on food security and asset building in Ethiopia and other parts of the world. The studies that were conducted recently, mostly in Ethiopia, are listed below. RPSNP was the biggest social transfer and safety net project in Sub-Saharan Africa in Ethiopia next to South Africa. According to (Ministry of Finance & Economic Development, 2010) the RPSNP offers transfers to people who are food insecure in a manner that generates assets at the community level, stops asset depletion at the household level, and promotes market activity.

2.3.1 Implementation of the Productive Safety Net Programme in Ethiopia

The implementation and contributions of the safety nets program for home food security has been the subject of several research studies. RPSNP was launched 2005 to food security investment strategy for the chronically food insecure Woredas, RPSNP is a part of the Ethiopian government's Food Security Program (FSP). The RPSNP aims to improve the food security status of members of households that are chronically food insecure by paying able-bodied members for their participation in labor-intensive public works activities and

providing direct subsidies to labor-poor, aged, or incapacitated individuals (Asrat & Anteneh, 2020). A number of pro-poor initiatives were funded by the government, such as the RPSNP, which aimed to lower food insecurity. Sustainable food security will be more difficult to achieve in the long run, though, given the three percent population growth rate that would mean a doubling of the population in less than thirty years, even provided internal stability, drought, and other related disasters are maintained.

According to Dessalegn and Ali (2018) RPSNP had a good effect on the households that were beneficiaries, even though the progress accomplished was insufficient to guarantee food security at the household level. Nevertheless, the study was unable to look into how the program affected the food security of households led by women. Dicks (2012) observed that recipient households' ability to acquire assets and obtain food had improved as a result of their involvement in the RPSNP.

Gilligan *et al.* (2009) performed an impact evaluation for Ethiopia's Productive Safety Nets Program based on a multivariate analysis of selected woredas that were beneficiaries after 18 months of its implementation. The study revealed that the program impact depends on how participation is defined. On average, the program had little impact on participants because of implementation issues (the cash transfers delivered to targeted households were below the intended amounts). When participation was defined as the reception of at least half the intended cash transfers to targeted beneficiaries, the program did seem to have an impact on the household's food security. However, the study did not differentiate male-headed from female headed households.

2.3.2 Contributions of Productive Safety Net Program on Food Security

The Food Security Program of the Ethiopian government includes the RPSNP among its several elements. Subsidies for voluntary relocation and a collection of initiatives collectively referred to as Other Food Security Program (OFSP) comprise the other elements. The OFSP consists of a variety of actions that vary depending on the region, but a set of loans for both agricultural and non-agricultural uses make up the core undertakings (Slater *et al.*, 2006).

(Kassa, 2018) studied the impact of RPSNP on food security and vulnerability among beneficiary households in Tigray, Amhara, Oromiya and Southern Nations, Nationalities, and

Peoples Region (SNNPR). According to the study's findings, Ethiopia's RPSNP positively affects food availability, especially during the lean season when demand is highest. RPSNP households had a drop in the yearly food gap, while non-RPSNP families saw a minor increase in the same gap. On the other hand, there was no discernible effect on the amount of food consumed each day defined as 2,200 kcal per person per day. Over time, there were no discernible improvements in the availability and consumption of calories by households.

Similar study was also conducted in Amhara, Oromia, Tigray, and the Southern Nations, Nationalities, and Peoples' (SNNP) regions. (Knippenberg, 2018) studied RPSNP's impact on household's responses to drought and According to their research, getting RPSNP transfers lowers one's vulnerability to drought by 57%.

Yitagesu (2014) studied the impact of RPSNP on food security among Keberibeyah Woreda in the Somali region. The findings demonstrate that after entering the program, RPSNP has improved asset building, especially with regard to livestock, production, and consumer durable assets, as well as the employees' work habits community by way of its outreach initiative. The investigation found that the program only marginally affects the beneficiary households' food consumption status, as it is not guaranteed that all members consistently have access to enough food, both in terms of quantity and quality, to have a nutritious and busy existence.

According to Mamo (2011), on evaluating the impact of the productive safety net program on asset accumulation, explained that participation RPSNP had significant impact on both asset accumulations. The reasons for wrong targeting wrong inclusion and beneficiaries' exclusion), inadequate preservation, oversight, and sustainable maintenance of locally built infrastructure, a lack of local knowledge, constructed infrastructure, a lack of awareness of local people, and a low level of cooperation among concerned officials are among the challenges (Mamo, 2011; Welteji *et al.*, 2017). According to Mohamed (2017) in Gera Keya Woreda of Amhara regional state (Giragn and Kimir Dinagy kebeles) the majority of the farm households in this area have responded to the reduction in the number of meals per day as their major coping mechanism at times of moderate levels of food shortage (82% and 90.1%) respectively.

According to Berhane *et al.*, (2011) used a dose-response impact evaluation method to assess the program impact on two major outcomes of the program (food security and asset accumulation) in Ethiopia between 2006 and 2010, with the program adding 1.29 months to that period (Berhane *et al.*, 2011). Making use of However, when using calorie availability as a measure of food security, they found that the RPSNP's employment component for Public Works had no effect on the calorie acquisition of participating households.

Eshetu, (2020) conducted an assess the impact of the productive safety net program on household food security in Fadis Woreda, East Hararghe Zone, Oromia Regional State, Ethiopia. A multi-stage sampling procedure was used in the study to select 209 sample respondents from participants in the Rural productive safety net program (RPSNP), both program and validated questionnaire with enumerator assistance was used to collect data from the sampled dwellings. Basic statistical analysis that is descriptive, such as mean and standard deviation, propensity matching model, and percentage, was employed in the data analysis.

2.3.3 Contributions of RPSNP on Household Asset Building

According to (Mamo, 2011), investigate the impact of the Productive Safety Net Program (RPSNP) on asset accumulation and sustainable land management (SLM) techniques, as well as the variables influencing SLM practices in the Central Rift Valley districts of Adamtitulu Jido Kombolcha and Meskan in Ethiopia. Both primary and secondary data were used in the investigation. The main information was acquired using a questionnaire from sample households, including 95 RPSNP and 91 non-RPSNP members. Farmland plots are being operated by both districts. There were influences on RPSNP program participation. Confluence of institutional, economic and household demographic factors Substantial effect on asset accumulation and SLM procedures.

Desalegn (2013) conducted a study entitled the Impact of the Productive Safety Net Program on Household Asset Building and Soil Conservation Activities: The Case of Lemo District, Haddiya Zone, and Southern Ethiopia". The goal of RPSNP in Ethiopia is to make a big difference, better address the needs of households that are food insecure, and make profitable investments to support environmental and economic growth and recovery. Regarding the effects of RPSNP at the national level, various initiatives have been conducted to evaluate its

overall effects, but locally, particularly in the Lema District, there is insufficient empirical data on the anticipated program results, such as asset building and investment made by program participants in soil conservation initiatives (Gobena, 2020).

Fitsum (2013) conducted a study on the impact of the Safety Net Program (RPSNP) on asset accumulation and sustainable land management (SLM) practices in the Eastern District of Hararghe, Haramaya. In light of this, primary and secondary data were gathered from the households in the research area that are rural. There was use of both econometric models and descriptive analysis for the analysis of the data. The Tropical Livestock Unit is created under the livestock asset (TLU), but the non-livestock assets are valued according to their current market value, as stated in the replies. According to the econometrics estimation results, household demographic factors such as the gender of the household head, the size of the family, the number of active people, the amount of food gaps that the population experiences each year, the housing situation, and the labour force of women families. As a result of participating in the program, the second stage outcome was discovered to be favorable and significant for all asset forms (livestock, productive, and non-productive). In general, the outcome showed that participant beneficiary households had more assets when compared to non-beneficiary household.

Tore (2022), assessed the effects of the productive safety net program on the establishment and preservation of household assets in the rural kebeles under the Dire Dawa Administration in Ethiopia. For this investigation, both primary and secondary data were employed. The primary data were from 90 RPSNP and 90 non-RPSNP sample households of six Kebeles, and they were gathered using a structured questionnaire. To choose the sample households, a multistage sampling procedure was applied. To determine how the project affected the treated families' outcome variables, a propensity score matching method was used. Descriptive statistics showed that, with regard to household age, family size, education levels, and visiting development agents for credit and extension services, there was a significant mean and proportional difference between the participant and non-participating households. Similarly, the results of the logistic regression estimation of the Propensity Score Matching (PSM) indicate that the variables that significantly impacted the RPSNP participation of households were age of the household, size of the household family, size of irrigated land, and credit services. The results of the PSM estimation indicate that the program (RPSNP)

intervention had no discernible effect on the outcome variables (household income, livestock in TLU, etc.), expenses, and the entire assets of the household, yet showed a significant shift value between the two categories for asset generation and protection at a 1% probability level, which demonstrates households appropriately safeguard their investments.

Wolde (2020), examined the effect of the safety net program on the creation of household assets in Janamora woreda by comparing RPSNP participants to non-RPSNP participants of poor households using a propensity score matching model. The binary variable served as the dependent variable in that instance. It was the RPSNP (1, participated, and 0, not participated) participation. The approximate results show that nine factors had a substantial impact on RPSNP participation. Predictor factors include involvement in other foods and religious impact; employment creation; market access; and security program were noteworthy at 1% degree of significance, but elements include home occupancy, family size, age, and the respondent's household's annual savings were at the 5% significance level, and households that used credit and owned crop land were significant at the 10% significance level. The RPSNP intervention had not demonstrated a positive correlation with the outcome variable of income from livestock assets. The PS NP effect on the generation of all HH assets following the nonetheless, neither respondent's asset creation has changed while considering the shift of assets with and without treatment (control) by different means. The PSM estimation outcome displays that there has been no discernible effect of RPSNP participation on the formation of household assets.

According to the Getabalew (2018), study on the impacts of the Productive Safety Net Program (RPSNP) on asset building and poverty reduction in Dessie Zuria Woreda, A multi-stage-stageing strategy was employed in the study to identify representative samples, and 16 secondary data sets were analyzed in addition to the primary data. The primary sources of data were gathered using organized surveys from 125 non-participants and 130 RPSNP participants, as well as an interview. Next, both econometric and descriptive statistics were used to analyze the data that was gathered. Within the econometric research the approach known as Propensity Score Matching (PSM) was utilized. Within PSM assignment, the propensity score of households was estimated using the logit model. Take part in the program, considering its features. The logit model's findings revealed that the dependent variable (participation in RPSNP) was statistically substantially impacted by the following

factors: the sex of the household head, educational attainment, and the area of the cultivated land, loan availability, off-farm income, and involvement in OFSPs. Furthermore, the RPSNP had a positive and significant impact on food security and poverty reduction in the PSM output, which was obtained after balancing the covariates of the participating and non-participating households through the kernel 0.1 matching estimation; however, its effect on the beneficiary's assets was positive but not statistically significant. Specifically, compared to households that did not participate in the RPSNP, those who did had improved their annual food consumption spend per adult equivalent by 903 Ethiopian birr (17.7%) and were able to lessen the severity of poverty by 0.017 (48%). take part in the RPSNP (Tore, 2022).

According to Yibrah (2010), the RPSNP intervention allows beneficiary households to keep their asset holdings. This is demonstrated by the impact of RPSNP on rural household asset protection and consumption using the PSM approach. The households that receive RPSNP benefits have asset valuations that surpass those of the households that were not RPSNP beneficiaries. The RPSNP-advantaged households, The RPSNP's intervention has led to an increase in their livestock holdings. Hence, the program helps them to safeguard (enlarge) their herds of cattle. The investigation's outcome discovered that the average difference in TLU between the cattle holdings between the relationship between RPSNP recipient households and non-beneficiary households was favorable.

2.3.4 Challenges of the Rural Productive Safety Net Program in Ethiopia

The factors that hampered the program were capacity, graduation, timeliness of transfers, and donor funding. The other problem or challenge that faces the implementation of the program is inadequate financial resources. As a result, only a small number of beneficiaries were allowed to participate in the program (Fisseha, 2014).

According to Mohammed (2017), the accessibility of assets has an influence on the government's strategies to be undertaken. Besides, it also indicated that geographic location, administrative (the selection mechanism used for eligible households), the exclusion of the poor with the inclusion of the rich, weak institutional linkages, and a lack of active community participation in the decision-making process were the challenges for the program implementation. Quality of planning processes, understanding of the program at the district level, inefficient RPSNP quotas, and dalliance of budget flows. In this study, the challenge of

focusing on and slowly graduating female-headed families was not examined (Mohamed, 2017). Hoddinott *et al.* (2012) conducted an evaluation-style study to see if the program affected the number of households experiencing chronic food insecurity. The study, however, disregarded RPSNP's contribution to ending the ongoing food insecurity experienced by female-headed households. In research on the impact of graduation on household food security (Hoddinott *et al.*, 2012).

Feleke (2006), found that even after they had completed the program, 3/4 of the graduating beneficiaries reported food shortages. However, the study was unable to investigate how food scarcity intensifies food insecurity in households led by women. According to Some of the challenges of the program were the targeting of beneficiaries, the inability to distinguish between acute and chronic food insecurity at the grass-roots level, the application of a single wage rate at the national level, the lack of capacity to manage the unprecedented amount of cash flowing into the district, and the linkage problem at the grass-roots level. The challenges that face RPSNP implementation are the inclusion and exclusion of beneficiaries, poor conservation practices, the limitation of awareness of beneficiaries, the linkage problem of officials, the lack of manpower in remote areas, and the lack of monitoring and evaluation of locally constructed infrastructure for their sustainability (Welteji *et al.*, 2017).

Fekadu and Ignatius (2009) examined a RPSNP implementation difficulty, and the study's findings show that inadequate community, administrative, and geographic targeting is a clear contributing factor to the program implementation difficulties. The method by which targeting the impoverished is fraught with corruption and nepotism (favoritism), as shown by the high proportion of program enrolled non-poor households. Additional difficulties, a negatively inactive community, and poor institutional ties are two factors that impact the program involvement in the process of making decisions (Fekadu & Ignatius, 2009).

2.4 Summery of Literature gap

From the above theoretical, conceptual and empirical literature reviewed, it can be understood that most of the study focused on the productive safety net programe in urban areas of other part of the world (other than Ethiopia) and specifically in rural areas of Ethiopia. They have studied the roles, contributions and impacts of PSNP and status of food security households. Since the productive safety net program is newly implemented in

Ethiopia, there is limitation in researches carried out in this study topic. Therefore, studying the root causes of rural food insecurity, determinants of participation on RPSNP, food security status and improvement of Beneficiary households in their livelihoods before and after joining the program has paramount importance in generating information about their status change as well as serving as a baseline for assessing the programs impact after some year in the future. Besides, it has further importance in allowing the program implementers to understand the real situation of the beneficiaries and to take appropriate measures for effective implementation of the program .In this case, it will be possible to properly alleviate poverty and vulnerability of the rural poor female headed households. So, this study tries to fill the knowledge gap answering root causes of food insecurity and the RPSNP effects to improve food security status of beneficiary female headed households specifically Goncha Siso Ense woreda.

2.5 Conceptual Framework

An important component of the RPSNP is an impact evaluation that is hoped to provide vital lessons to further refine the program in due course. And the quest for identifying the contribution of safety net to female headed households' food security improvement and income generation is high on the priority list for evaluating the impact of productive safety net program. Basically, intervene food insecure female headed households with RPSNP conditional cash transfer successful it is necessary to thoroughly explored independent variables such as socio economic and demographic factors & perception of the beneficiaries & how their interactions with the intervention can additionally influence the dependent variable improvement of food security which can be revealed as food self-sufficiency, reducing vulnerability, asset accumulation and infrastructure development, increase productivity modern farming system, increase income, better standard of living, livelihood diversification.

The framework constructed based on their objectives and research that household food security can be influenced by a variety of factors. The framework contains different factors that mainly determine the household food security and agriculture production. These include in the demographic characteristics of household head's such as age, sex, education level, marital status, household size, and have a big role in the increasing of the rural household

production. Socioeconomic factors that relate to social activities and capital of farmers like of agricultural inputs, the household total livestock unit, land holding, farming experience and engagements with off-farm activities. The other factor related with household food security are institutional factors category includes access to credit, access to market, farming characteristics such as farm size, livestock holding, and household's access to extension services. Which all factors have positive or negative implication to increase food production and household income related with female household food security. Rural households are more vulnerable to food insecurity and depended on agriculture production and productivity which related to into demographic, socio-economic, institutional factors (Babatunde *et al.*, 2012).

When RPSNP has been implemented in its public work and direct support components, it enables majority of the beneficiary households to be food secure and built assets. However, it encountered different challenges such as dalliance of payment that make households to take loans before the transfer has been distributed which obliged them to pay the loan as soon as the transfer received.

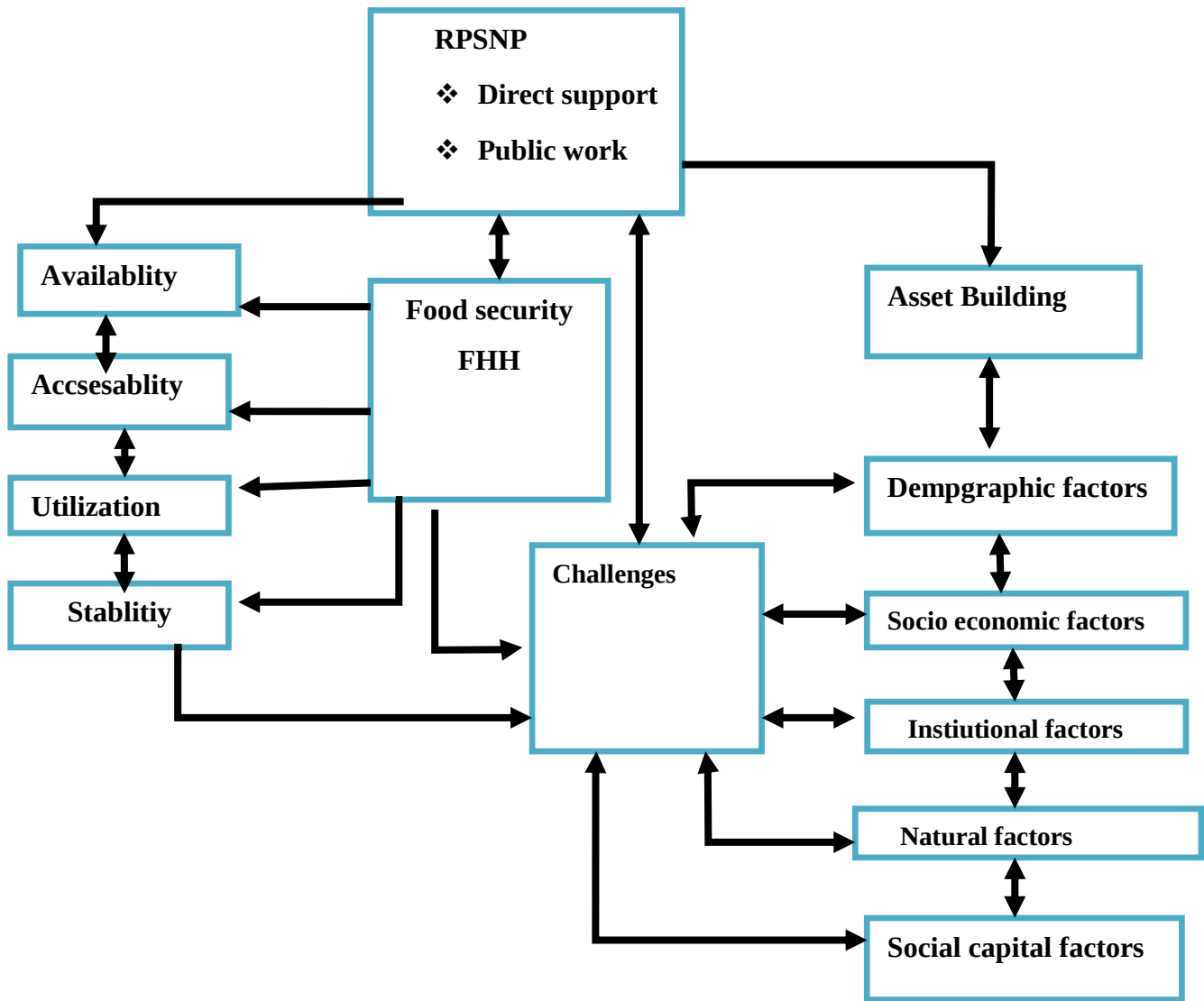


Figure 2.1: conceptual framework of the study

Source: Constructed by the researcher, January, 2023

CHAPTER THREEE

REASEARCH METHODS

3.1 Description of the Study Area

3.1.1 Physical Characteristics

3.1.1.1 Location

This study was conducted in Goncha-Siso-Enesie Woreda is one of the 18 woreda of the East Gojjam Administrative Zone in Amhara Regional State's northwest Ethiopia. The absolute location of this Woreda lies between 10°48'0'' and 11°9'0''N latitude and 38°1'0'' to 38°30'0''E longitude. (Fig 3.1) Woreda is located about 335km away from Addis Ababa, which is the capital of Ethiopia. It is bordered in the south by Enarge-Enawuga Woreda, on the north by the Abay_River, which separates it from the South Gondar Zone, in the east by Enebsie-Sar-Mider Woreda, and in the west by Hulet-Eju-Enesie Woreda. It covers about 98,385 square kilometers of the surface. At present, Woreda has 41 total kebeles, 2 urban kebeles, and 39 rural kebeles. Gindawin is the capital of woreda (GSEWCO, 2022).

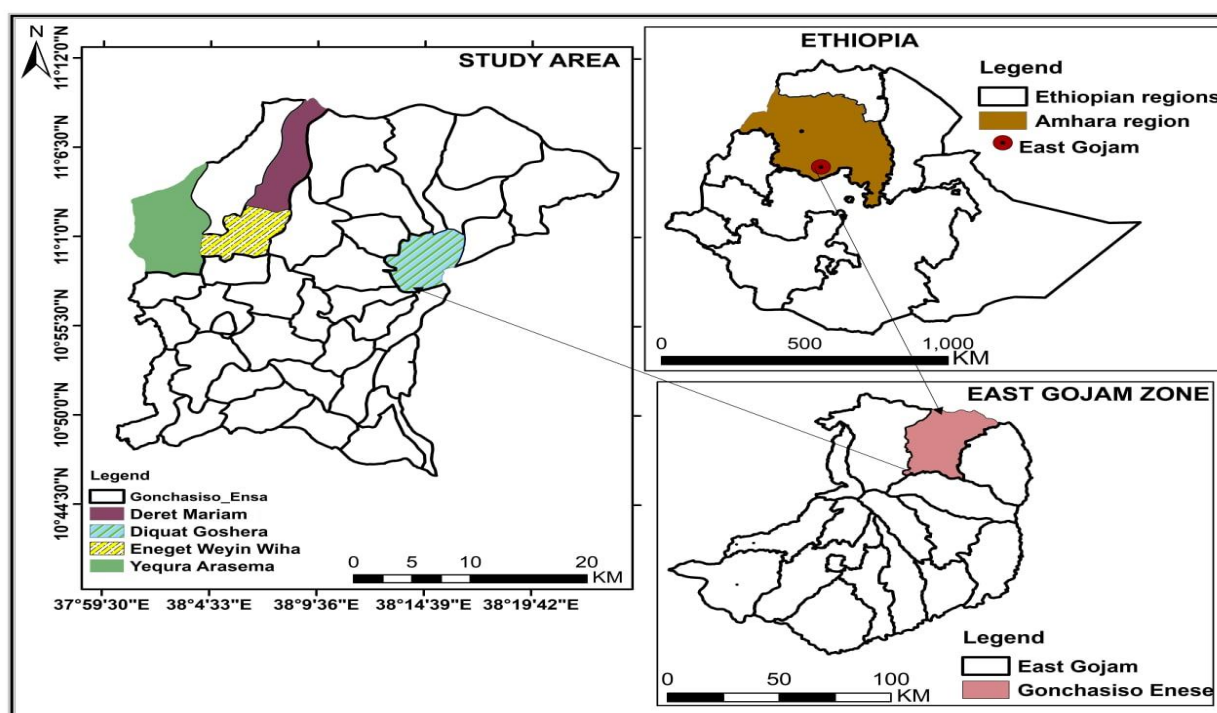


Figure 3.1: Map of Study Area

Source: Ethio GIS Shapfile (2022)

3.1.1.2 Climate and Agro-Ecological Zone

Goncha- Siso-Ense Woreda is situated in three agro ecological zones. Which are equivalent to the Ethiopian agroecological zones of Woina Dega, Dega, and Kola, respectively? The agroecological situation of the study Woreda is characterized by 12% Dega (highland ranging from 2300–3200 m.a.s.l.), 48 % Woina Dega (midland ranging from 1500–2300 m.a.s.l), and 40% Kolla. Lowland ranging from 500–1500 m.a.s.l., the mean annual rainfall amount (from 1994 to 2013) in the Woreda varies from 1100.5mm (at Gindewoin town) to 500 mm (at Blue Nile Canyon) (GSEWCO, 2022).

There are four seasons in the woreda, namely Bega (dry) from March to May and Kiremt (rains) from June to August. Tibi from September to November and Meher from December to February (harvest season). The average annual rainfall of the woreda is 500–1100 mm, with an uneven distribution of rainfall with respect to time and by interpolating a raster surface from discrete data at each point, the spatial distribution of mean annual rainfall is calculated (GSEWCO, 2022). The rainfall distribution in the woreda varies from year to year and across seasons, receiving the greatest rainfall in summer and the smallest portion in spring and the temperature is between 14⁰c to 23⁰c (National Meteorological Agency, 2020).

3.1.1.3 Topography

According to Goncha-Siso-Ense Worda and the Rural Development Office (GSEWARDO, 2022), the major landforms in Worda include flat, gently sloping to slightly dissected undulating plains, rugged and dissected plateaus, high mountainous hills, and gorges. The elevation in Woreda ranges from 100m to 2800 m above sea level, with a mean altitude of 1900m. The terrain is divided into three categories: plain (46%), undulating (16%), and mountainous (38%).

3.1.1.4 Land use Land cover

The Woreda has a total land area of 98,385 ha, with 48,664.30 ha (49.5%) cultivated, 14,698 ha (14.9%) of grazing, 7,358ha (7.4%) of bushland, 1023 ha (1.5%) of forest, 2846 ha (2.9%) of water bodies, 5,276 ha (5.3%) of barren land, and 18,520 ha (18.5%) of settlement (GSEWCO, 2022).

3.1.1.5 Soil type

The soil types of Goncha Siso Ense woreda are brown soil (60%), grey soil (20%), and red soil (15%) are the most common soil types. is shallow in depth and bare, it is prone to soil erosion (GSEWCO, 2022).

3.1.1.6 Drainage System

According to the communication Goncha-Siso-Ense Worda community office (2022), the rivers in this woreda, which include Bina, Azuari, Tsiwa, Chiye, and Tigdar, are among the major rivers, including other small rivers. All these are tributaries of the Abay. Lake Bahire Giorgies, Enesie kol, and Getesemani are two of the main water bodies in Worda.

3.1.2 Demographic and Socio-Economic Characteristics

3.1.2.1 Population

The Amhara Region is one of the most densely populated areas in Ethiopia. Based on the projected census data conducted by the Central Statistical Agency of Ethiopia (projected CSA, 2022), this woreda has a total population of 187,581. Population: 92,879 are males and 94,702 are females, implying that 49.5% are males and 50.5% are females, or 5.14% are urban inhabitants, and 94.86% are rural inhabitants (projected CSA, 2022).

3.1.2.2 Major Economic Characteristics

Agriculture is the major economic activity in the Amhara Region, as it is in all parts of Ethiopia. The dominant economic activity in the area of labor is the mixed production of crops and livestock, which is the cornerstone of the economy of this woreda. Agricultural activities are dependent on the current (summer) rains, which fall from May to October. The main crops cultivated are teff, barley, maize, sorghum, beans, potatoes, millet, etc. The bulk of the produce is used for household consumption. The main challenges to food production for the impoverished are soil acidity, crop diseases, land degradation, and a host of other issues in the hills. Furthermore, inadequate market access probably made household food insecurity worse. Owning livestock is essential for enhancing a household's ability to withstand disruptions to its source of income (GSEWFEDO, 2022).

The dominant economic activity for the region is agriculture, and about 85% of the population of the region is engaged in agriculture. The rural population of the region earns its living from mixed agriculture. In the Woyina Dega agroecological zone, teff, wheat, barley,

maize, and leguminous crops such as pea, horse bean, chickpea, and others are growing. In the Dega agroecological zone (above 2800m elevation in cool, moist highlands), barley and potatoes are chiefly produced. In the Kola (warm, moist lowland) agroecological zone, agricultural production is suffering, perhaps from erratic rains, small landholdings, and severe ecological degradation. Local labor and firewood/charcoal sales are alternative means for the farmers to meet their food needs. Moreover, in the Kola agroecological area, market accessibility is limited due to its remoteness and inaccessibility (GSWARDO, 2020). Goncha Siso Enese woreda is judged to be one of four chronically food-insecure woredas in this part of the Amhara Region (MOARD, 2020). Due to much of their farmland being "extremely depleted and deforested, it has been eligible to get support from the RPSNP. Hence, it is under RPSNP. Thus, only chronically food-insecure kebeles and household heads from the Woreda get the support. Among the 41 rural kebeles, 14 have the support of the RPSNP (GSEW FSPSNPO, 2022).

3.1.3 Productive Safety Net Program Implementation of Woreda

Food crises and famines are typically used to describe food insecurity in Ethiopia, and emergency food-based solutions have historically dominated efforts to address it. Rural Kebeles were selected due to their high vulnerability to food insecurity, with more than one-third of the population undernourished as a result of their complete reliance on annual rain-fed agriculture in the absence of other sources of income, frequent droughts, poor soil fertility, small land sizes, rising family sizes, and limited access to credit facilities (Duncan, 2015). The program was started in 2008 in the woreda. The RPSNP has been targeting poor individuals in two ways. One is through public works (PW), and the other is through direct support (DS) (GSEWFSRPSNPO, 2022). The study was on households that participated in RPSNP; it was implemented in 14 rural Kebeles out of 41 total Kebeles found in Goncha Siso Ense Woreda.

Table 3.1: Goncha Siso Ense Woreda RPSNP Beneficiary Data 2022.

No	RPSNP beneficiary Keble’s	Direct support			Public work			Total		
		HH Heads			HH Heads					
		M	F	T	M	F	T	M	F	T
1	Filatko	17	34	51	100	32	132	117	66	177
2	Derit	47	81	128	161	93	254	208	145	353
3	Abar Wuha	41	94	151	167	51	218	208	161	369
4	Angot	56	82	138	198	60	258	254	142	396
5	Nibazila	48	124	172	122	86	208	170	210	380
6	Agazen Meda	36	117	153	220	66	286	256	183	439
7	Wondiye	30	97	127	157	75	232	187	172	359
8	Segena	55	94	149	131	50	181	186	144	330
9	Sarat	4	9	13	214	88	302	218	97	315
10	Selamge	19	69	88	127	82	209	146	151	297
11	Arasima	30	28	58	145	26	171	175	54	329
12	Enget	22	33	55	202	43	245	224	76	300
13	Goshera	20	41	61	151	102	253	171	143	314
14	Engeshe	17	36	53	65	38	103	82	74	156
	Total	442	939	1381	2160	892	3052	2602	1831	4433

Source: GSEW RPSNPFSSO, 2022

3.2 Methodology of the Study

3.2.1 Research Design and Approaches

Research design is a framework that serves as a plan to study the research problem. This study used a cross-sectional research design. The purpose of adopting a cross-sectional research design for the study is to measure the contribution of RPSNP to the improvement of female-headed beneficiaries' food security status. Using this research type, the study has obtained precise general information about the current features of society. This research design is to manage the collection of relevant data with minimal consumption of effort, time, and money considering the research objectives (Kothari, 2004).

The study employed a concurrent mixed approach to collecting and analyzing quantitative and qualitative data.

Because both qualitative and quantitative data were collected and analyzed at the same time, both qualitative and quantitative approaches were used in the study design in order to produce a comprehensive analysis of the study. The information crucial for this study was collected in the form of qualitative and quantitative data from primary sources by preparing questionnaires, conducting interviews, and focusing group discussions. For this study, the concerned body of the program, such as the female-headed household beneficiaries, is the focal body. The qualitative approach was used in order to gain a deep understanding of the safety net program, its main activities, and its contribution to improving female-headed households' food security. Semi-structured interviews and focus group discussions were carried out to gather qualitative data. Quantitative approach is used to quantify and see the relationship among variables. A household survey was carried out to conduct a cross-sectional study to collect data on the socio-economic and demographic information of female-headed households, the public work activities undertaken, and the perceptions of respondents towards the program implementation (targeting, expression of opinion, creation of awareness about the program among beneficiaries, impartiality, and adequacy of support).

3.2.2 Data Types and Source

This study used both primary and secondary data types to gather data about the contribution of the rural Productive Safety Net Program to improving female-headed households in food security and asset building in the study area. The data sources include sample respondents (questioners), key informants, and focus group discussions. The study used secondary data from different published and unpublished sources, such as books, journals, research reports, magazines, and official statistics and reports.

3.2.3 Target Population

The target population of the study was female-headed households that participated in RPSNP. RPSNP is implemented in 14 rural Kebeles out of 41 total Kebeles found in Goncha Siso Ense Woreda. The study was carried out in four specifically chosen Kebeles. The total beneficiaries in the Woreda study population were composed of Direct Support (DS) and Public Works (PW) beneficiaries residing in the four Kebeles. Thus, formally registered and

benefited from RPSNP up to February 2023. A sample size was drawn because it was impossible to consider the total population as respondents to the survey due to a shortage of time and cost. The sampling units for this study focused on RPSNP beneficiary female household heads, kebele and district-level program implementers and coordinators, and kebele managers. The researcher selected food-insecure households in rural Kebeles from Kola and Dega agroecological zones, namely Yequra Arasma, Derit Maryiam, Enget, and Goshera.

Rural Kebeles were chosen based on their high vulnerability to food insecurity, frequent drought, poor soil fertility, small land size, large family size, and limited access to credit facilities (Feleke, 2006). Generally, participants in this study were female-headed households RPSNP beneficiaries. From the start of implementation in Goncha Siso Ense woreda, from February 2008 to February 2023, the Woreda Food Security Office and RPSNP staff, RPSNP implementing bodies at the Kebele Mangers, Kebele Food Security Task Force, and Kebele Development Agents.

3.2.4 Sampling Techniques and Size

3.2.4.1 Sampling Techniques

The study employed both probability and non-probability sampling methods to select the study area and sample respondents. The use of multistage sampling techniques was utilized. Firstly, in the East Gojjam administrative zone, there are 18 woredas. Among those rural woredas, Goncha Siso Ense woreda is selected purposefully due to the severity of the problem, which is chronic food insecurity, the higher number of caseloads or beneficiaries of female-headed households, and the many years of support provided through the emergency and practiced rural safety net program, as well as based on the researcher's prior knowledge of the area. consist of the beneficiary's female-headed household for the program by providing transfer payment interims of Birr for public works (PW) for six months per year and permanent direct supports (PDS) for one year (12 months). The woreda has been administratively organized into 41 kebeles, of which 39 are rural and 2 are urban kebeles (GSEWCO, 2022).

Secondly, stratified random sampling was employed to select specific kebeles stratified by agroecological zone. This woreda is categorized into three agro-ecological zones. These are

Dega (highland), Woina Dega (mid-highland), and Kola (low land). The woreda consists of 41 kebeles; from this, 12 kebeles are Dega, 18 kebeles are Woina Dega, and 11 kebeles are Kola agroecological zone (GSEWCO, 2022). Only 14 Keble are benefiting from the productive safety net program from these 7 Dega and 7 Kola Keble agro ecology zones. Woina Dega agro ecology zones are not beneficiaries of the productive safety net program (WFSRPSNPO, 2022), because of fertile soil, productive land, and enough rainfall suitable for agricultural production. Thirdly, to select samples, Keble's purposive sampling technique was employed. Four kebeles are selected out of 14 kebeles, with the intention of having a large number of female-headed household participants in the RPSNP and food insecure kebeles. Two kebeles, namely Arsima and Derit, are selected from the Kola agro-ecological zone because these kebeles are more food-insecure due to the dry agro-ecology zone, and the other two kebeles, Goshera and Enget, are selected from the Dega agro-ecological zone due to the criteria of the program that has the largest number of female-headed household Beneficiaries.

Finally, from selected Kebeles, sample households were drawn using a systematic random sampling method. In each study Kebele, a list of all female headed households was compiled based on Kebele registration records. With the assistance of Kebele leaders and RPSNP experts, Then first from beneficiary household select one randomly in the table and the next was drawn every t^h value until the required sample have been obtained using the following formula = 2 according to the above result lottery was drawn from 1-3 and the drawn number was added itself until 205 of the sample beneficiary households have been obtained from the four rural kebeles.

Table3. 2: Beneficiary Households by Keble & their sample Household heads.

Sample Kebeles	No FHH	Total No Beneficiaries
Arasima	119	54
Derit	190	145
Enget	118	76
Goshera	198	143
Total	625	418

Source (GSEWFSRPSNPO, 2022)

3.2.4.2 Sample Size Determination

To determine the sample size, the researcher applied (Yamane, 1967)simplified formula to calculate sample sizes. This formula is used to calculate the samples in the above table. 95% confidence level and margin of error =5%

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

Where,

n=Desired sample size

N=Target population of the study area (418)

e=Margin of error (0.05)

$$n = \frac{418}{1+418(0.05)^2} = 205$$

A total of 205 female-headed households were sampled for a questionnaire survey from the four rural kebeles using systematic random sampling techniques. The researcher also determined the sample size of each Keeble by using a proportionality-stratified sampling formula (Mohamed, 2017).

Table3. 3: Total sample Size of each Keble by RPSNP Beneficiary status.

Sample kebeles	Agroecology zone	Total FHH	Total beneficiaries FHH	sampleFHH
Arasima	Kola	119	54	27
Derit	Kola	190	145	71
Enget	Dega	118	76	37
Goshera	Dega	198	143	70
Total		625	418	205

Source: own field survey November, 2022

3.2.5 Instrument of data collection

The study employed data collection methods like field surveys (questionnaires), key informant interviews, focus group discussions, and field observations.

3.2.5.1 Questionnaire

The questionnaires consist of a number of questions that can be assumed to achieve the intended objectives and are distributed to the selected 205 female household heads. The questions were prepared by English and translated into Amharic language for easy understanding. Questionnaires were structured with closed and open-ended type. The household survey method believes in providing reliable and, most importantly, used data to address the majority of variables that are important to meet the specific objectives of the study.

3.2.5.2 Focus Group Discussion

In this study, four group discussions were held (one FGD per Kebele). Each FGD is composed of seven participants. The participants were members of the committee for the identification process of RPSNP beneficiary households. For this purpose, a checklist was prepared, and each discussion was facilitated by the researcher. Focus group discussions were carried out in order to complement the information collected through the survey. such as female-headed household leaders consisting of female organizers, team leader experts, public work team leaders, community-based development activity experts, community mobilization team leaders, community-based targeting selection, and from each Kebele.

3.2.5.3 Key Informant Interview

The researcher employed semi-structured interviews as it allowed a wider freedom to ask further questions and helped to control the direction of the interview to elicit the desired data. An interview is a face-to-face conversation with the informants and a method of collecting information or gathering opinions that specifically involves a series of questions. The key informants were selected purposefully to be involved in the follow-up, management, and monitoring of the program. Interviews were taken with top officials to gather relevant information from those who were knowledgeable and had better experience. One interview scheduled contained 40 minutes and 6 key informants. KIIs were designed and administered for by woreda food security and RPSNP experts, women, children, and youth affairs heads, kebele food security task force and Kebele administrators (including women representatives).

3.2.5.4 Field Observation

The researcher conducted field observation throughout the whole process of the research. Observations were conducted on RPSNP during data collection. The major focusing areas

during observation are the physical status of the household house, the status of the land, their own activities, petty trading daily labor, the asset level at the household community level, and the asset ownership of FHH. Observations were made through the field survey to acquire a quick understanding of the biophysical and socio-economic characteristics of the study area. The data about types of public works done by RPSNP, social services provided by the RPSNP, the types of infrastructure constructed the quality of public works and social services done by RPSNP.

3.2.6 Pilot Testing

The questionnaire was pre-tested before the final distribution. It is usually done to detect any weaknesses in the research design. The pre-testing is done with the aim of refining and fine-tuning the questionnaire so as to ensure that it is valid and reliable. The pilot testing was done on twenty respondents from the study population, who were then excluded from the final study to eliminate bias. The pilot testing is done to check for possible errors in the instrument. The questionnaire was then self-administered in hard copy form to each of the respondents and picked up later, after a day, to increase the response rate. In addition to this, before the final research questionnaire was distributed, the district RPSNP coordinator, program implementer experts, and manager suggestions and comments were incorporated into the final research questionnaire to assure the validity and reliability of the collected data.

3.2.7 Reliability and validity

3.2.7.1 Validity Test

In order to make a triangulation and increase the validity of the data. To check the validity of the instruments, first, the researcher prepared the instruments. Then, the researcher submitted to the adviser and other consultants for review. Finally, according to the adviser's comments, the researcher made adequate adjustments to the items. Finally, the researcher conducted interviews with selected participants.

3.2.7.2 Reliability Test

Reliability addresses the ability of a measuring tool to provide the same result on repeated occasions. To address the issue of questionnaire reliability and accuracy in this study, the pre-test method of reliability testing was used. To check reliability, a pilot study was conducted in Filatako from the Kola agro-ecology zone and Wondaye from

the Dega zone of Goncha Siso Ense Woreda, with a 10% sample household of randomly selected 20 households. 20 respondents from two kebeles to check the reliability of items prior were then excluded from the final study to eliminate bias in the final administration of the questionnaires to all respondents. The purpose of the pilot test was to ensure the validity and reliability of the instruments and to determine whether or not the researcher could obtain pertinent data by using the items included in the instrument. Besides, the purpose of pilot testing was to make necessary amendments so as to correct confusing and ambiguous questions. The SPSS computer program does a statistical computation of the pilot testing outcome. The Cronbach's alpha model was used for reliability test analysis. Based on the pilot test, the reliability coefficient of the instrument was found to be statistically calculated. Checking the validity and reliability of data collection instruments before providing them to the actual study subject was the core of ensuring the quality of the data (Ghazali, 2016). Therefore, based on the respondent's response, additional omissions and modifications to the question were undertaken. A reliability test was performed to check the consistency and accuracy of the measurement scales. As Table 3.4 shows, the results of Cronbach's coefficient alpha were that the total reliability coefficient was 0.91, indicating the questions in each construct were reliable.

Table3. 4: Reliability Test Results with Cronbach's Alpha

No	Questions	No of item	Cronbach's Alpha
1	How to implement Rural Productive Safety Net Program in the study area?	12	0.932
2	What are the contributions of Productive Safety net program improving on female headed households' food security status?	15	0.889
3	What are the contributions of Productive Safety Net Program on households' asset building?	10	0.867
4	What are the challenges of RPSNP towards the contributions of households' food security in the study area?	11	0.943
	Cronbach's 'Alpha		0.91

Source: own field survey, March, 2023

According to Joseph and Rosemary (2003), Cronbach's alpha coefficient (α) for pilot testing: Cronbach's alpha Internal Consistency $\alpha \geq 0.9$ =Excellent, $0.8 \leq \alpha \leq 0.9$ = Good, $0.7 \leq \alpha$ = Acceptable, $0.6 \leq \alpha$ =Questionable, $0.5 \leq \alpha < 0.6$ =Poor, $\alpha < 0.5$ = Unacceptable. The Cronbach's alpha coefficient for this study, which involved gathering data from a pilot test of 20 randomly selected respondents, was 0.91. This implies that Cronbach's alpha was greater than 0.9, justifying that the survey instrument was excellent in terms of internal consistency. Therefore, based on the respondent's response, additional omissions and modifications to the question were undertaken. Reliability test was performed to check the consistency and accuracy of the measurement scales. As table 3.4 shows, the results of Cronbach's alpha coefficient were that the total reliability coefficient was 0.91, indicating the questions in each construct were reliable.

3.2.8 Methods of Data Analysis

Both qualitative and quantitative data analysis methods were applied in this study. The qualitative approach was used to describe the responses of the various stakeholders from the questionnaire interview, focus group discussion, and field observation. Quantitative data were also analyzed by using descriptive and inferential statistics. Descriptive statistics were used to describe the demographic and socio-economic characteristics of the rural female household heads with respect to the RPSNP implementation. Numerical data under quantitative approaches was tabulated, interpreted, and summarized so as to describe the populations in the samples. The collected data was coded, edited, entered, and analyzed in software known as the statistical package for social sciences (SPSS version 25). For the first objective used for quantitative data analysis includes frequency, percentage, tables, charts, graphs and Minimum, maximum, mean, and standard deviation. The qualitative method was used by triangulation of data.

With regard to the second research question, assess the household's food security status; the analysis was conducted descriptively using, mainly, percentages. The analysis of the household's food security status involves examining the household's responses to HFIAS, rCSI, and FCS questions and supplementing them with a cross-validation tool. The effects of a few socioeconomic factors of the families on their level of food security were ascertained using binary logistic regression. The binary logistic regression model was mainly used, because the dependent variable is dummy or categorical (food secured and food insecure households) to identify which independent variables most significantly affect the food

security status of rural households and which independent variables do not significantly affect the food security status of rural households.

In the third research question, the method used for quantitative data analysis was frequency, percentage, tables, and graphs of sampling of the contribution of RPSNP to asset building. We used minimum, maximum, mean, and standard deviation and econometric paired T-test analysis to compare household assets or wealth before and after participating in the RPSNP program. The qualitative method was used by focusing group participants and interviewers and also used data triangulation. Finally, descriptive analyses of the data using percentage and frequency distribution were used to analyze the challenges of RPSNP in the study area, and also, a qualitative method was used by focusing group participants and interviewers.

3.2.8.1 Binary Logistic Regression Model Specification

In order to determine the link between a dependent variable like the level of food security and a number of independent variables, binary logistic regression models were used. Food security as a dependent variable binary logistic regression model was used to determine the factors affecting household food security. Binary logistic regression models were used to establish the relationship between dependent variable such as food security status and a set of independent variables such as age, marital status, income, education, farm size, family size, credit access, irrigation access, extension services. Etc. Binary logistic regression is a type of regression analysis where the dependent variable is a nominal variable (coded 0, 1. In this study, independent variable was included and their contingency coefficients were measured using SPSS. The model used for this analysis was presented.

The logistic model is specified explicitly as:

The association of dependent and independent variables was examined through binary logistic regression and the binary logistic model can be specified as follows.

$$Z(x) = \{ \text{Exp}(B_0 + L B_i * x_i) \} / \{ 1 + \text{Exp}(B_0 + L B_i * x_i) \} \quad (1)$$

Derivation of the logit model can be performed as follows:

$$\text{Let } p = \exp(z) / \{ 1 + \exp(z) \} \quad (2)$$

$$1 - p = 1 / \{ 1 + \exp(z) \} \quad (3)$$

$$\frac{p}{1-p} = \exp(Z) = \text{odds} \quad (4)$$

$$\frac{p}{1-p} = e^{B_0 X_0} * e^{B_1 X_1} * e^{B_2 X_2} \quad (5)$$

$$\ln\left\{\frac{p_i}{1-p_i}\right\} = B_0X_1 + B_1X_2 + B_2X_3 + \dots + B_nX_n \quad (6)$$

$Z(x)$ = Food security status (0, if household is food insecure, 1, if household is food secure)

$B_i = B_1, B_2, B_3, \dots, B_n$: were the regression coefficients indicating the magnitude of change (increased or decreased food security) in the independent variable. The odds ratio Z_i is the factor by which the odds change when the independent variable.

$X_i = X_1, X_2, X_3, \dots, X_n$: are the independent variables used in the model.

X_1 = Maternal status of respondents

X_2 = Household size (Number of dependents)

X_3 = Income of household head (birr)

X_4 = Access to credit (Access = 1; No access = 0)

X_5 = Age of household head (Year)

X_6 = Level of education of household head

X_7 = Irrigation use (Access = 1; No access = 0)

X_8 = Use of Agricultural input (Access = 1; No access = 0)

X_{11} = Land size (Hectares)

X_{12} = Total crop production within a Year (in quintal) Etc.....

3.2.9 Description of Dependent and Independent Variable

The dependent variable used in this analysis was a female-headed household's food security status and asset building, which were assumed to be affected by different factors that include demographic, socio-economic, environmental, and other different resources. Their effects on the dependent variable were estimated using a binary logistic regression model using SPSS software. The independent variables hypothesized in this study are those expected to influence the dependent variable.

Age of household head: It is an independent continuous explanatory variable measured in years. It was assumed to determine household food security and asset building. The age of the household head has been considered a positive factor contributing to household food security. In Ethiopia, most women are responsible for their household at an older age when they lose their spouses, die, or get divorced. For this study, the age of the household was assumed to positively affect household food security. Household heads of older age tend to be more experienced in farming than household heads. Households headed by older members could

afford to facilitate farm production because they had better access to resources than households headed by younger members.

Maternal status: It is a categorical variable with a value of 1 for a single household head, 2 for divorced, and 3 for widowed household heads. Marital status is the most important indicator that determines the level of food security in rural households. For this study, hypothesized marital status and food security were negatively associated, and a single household has a better chance of being food secure than a divorced one.

Household family size: is a continuous variable that refers to the number of household members. It is an important variable that determines the state of household food security in the interims of increasing labor access for agriculture production, which is that they are of productive age and expected to have a positive effect on household food security. A household with a large family size may be more food secure than one with a small family size. It was hypothesized positive effect on household food security.

Educational Status of Household Head: It refers to the status of the household head education. This variable is categorical. Education provides people with the skills they need to earn a life.. A literate household head is thought to be more likely to pick up new skills (Karakara & Osabuohien, 2021). In this context, the educational status of the household head is hypothesized to have a positive relationship with the dependent variable. Being illiterate was assumed to decrease farmer's use of information relevant to farm productivity and thereby aggravate food insecurity. On the contrary, households led by literate heads are more likely to understand modern farming technologies provided by extension workers. Therefore, educational status was assumed to have a positive influence on household food security status.

Household Livestock Holding (TLU): It is a continuous variable and measured in Tropical Livestock Unit (TLU) refers to the total number of livestock in a household. The total livestock unit is calculated for each type of animal using a conversion factor. For rural households, their source of food for household consumption and income had a positive relationship with household food security and asset building. Large livestock sizes are predicted to make households less vulnerable to food insecurity, especially during droughts

when crop production is compromised for a variety of reasons. Therefore, the possession of large amounts of livestock may positively affect women's production activities.

Oxen ownership: Dummy variable that measures the oxen household owns. It is expected that the household has oxen owned will have a positive effect on food security because oxen enable the farm household to cultivate more farmland. In the Ethiopian context, where mechanized farming is not that developed due to economic reasons and even due to the topography of the farm lands, oxen are the main household wealth that is used for plugging and harvesting.

Household farm land size: The size of cultivated farmland is a continuous variable measured in hectares. Cultivated land is a major resource expected to be associated with a household's food security status. The size of cultivated land is positively associated with food security and asset building. The amount of crop production per household is related to farmland size. As the cultivated land size increases, provided other associated production factors increase, there is a possibility that the household gets more output as it remains a high basic capital input in food production.

Agricultural input utilization: It is represented by a dummy variable taking the value 1, if the farmers used it; 0, otherwise. These agricultural inputs are fertilizer and improved seed. Modern farming technologies have often been perceived as improving yield per unit area. Fertilizer use improves productivity per unit of cultivated area. Households using agricultural inputs are expected to have better food production. Therefore, it is hypothesized that households using agricultural input are expected to have better food security than non-users and are expected to be positively related to the dependent variable.

Market Distance: The gap between household farmland, homes, and local markets to sell their agricultural products is a continuous variable measured in kilometers. Closeness to market centers creates access to additional income via off-farm employment opportunities, easy access to information on inputs, and a decreased burden on transportation. Therefore, it was assumed that there is a positive relationship between access to the market center, household food security, and asset building.

Access to credit: is a dummy variable that takes a value of 1 if a household has access to credit and 0 otherwise. A dummy variable is created that represents the response “yes” with a value of “1” for those households having access to credit and “no” with a value of “0” otherwise. Following Demeke (2011), it is expected that credit access will have a positive effect on food security and asset building. Credit is an important source of investment for the expansion of agricultural production and food security.

Extension services: The dummy variable refers to a contact between an extension agent and a farmer and is measured as 1 if a household has access to extension services for agricultural production and 0 otherwise. It gives farmers more access to valuable information and helps them learn new technology from DAs through extension programs. The hypotheses in this study are that households that have contact with extension agents and received training on agriculture production are more food secure than those that did not contact extension agents. Training increases households’ awareness and knowledge about the program which in turn enables households to be food secure and build assets.

Agricultural shock: It is a dummy variable that assigns 1 if the rural household is vulnerable to agricultural shock and 0 otherwise. Food security is dependent on agricultural production, making households vulnerable to agricultural risk and the occurrence of different shocks like livestock and crop diseases. Shocks (economic, health, natural El Nino, conflict) can destroy assets directly (Kebebe, 2011). In this study, a negative relationship was expected between shock and food security.

Income: refers to the different sources of household income. According to Benjamin et al. (2013), Ethiopian income-generating activities are classified as agricultural and off-farm income sources as major sources of income. An important variable explains the characteristics of food-secure and food-insecure households. The ability of the household to get food could be improved by revenue from one's own production or from other sources that may be connected to employment as daily wage laborers. This might be because households engaged in nonfarm activities are better endowed with additional income and more likely to improve food security. Off-farm income has a significant contribution to moving households towards food security. As a result, farm employment opportunities will be created and expanded. In this study, a positive relationship was expected between income and food security.

Table3. 5: Dependent and Independent Variables

Independent variables	Measurement/value	Type	Expected coef. Sign	
			FS	FI
Age of household head	Year	Continuous	+	-
Marital status of household	1= single 2=divorced, 3=widowed	Categorical		
Education level	1=, illiterate 2=can read write 3=primary level education 4=secondary level education	Categorical	+	-
Household family size	Number	Continuous	+	-
Household cultivated land size	Hectare	Continuous	+	-
Amount of crop produced	Quntal	Continuous	+	-
Household Livestock holding	TLU	Continuous	+	-
Oxen ownership	Yes or no	Dummy	+	-
Income of households	Birr	Continuous	+	-
Market distance	Kilometer	Continuous	-	+
Access to irrigation	Yes or no	Dummy	+	-
Access to credit	Yes or No	Dummy	+	-
Access to Agricultural input.	Yes or No	Dummy	+	-
Agricultural shock	Yes or No	Dummy	-	+
Access to extension service	Yes or No	Dummy	+	-

Source: own field survey, April, 2023

3.2.10 Ethical consideration

Concerning the issue of ethical consideration, many scholars believed that social research would conform to the following ethical principles: voluntary participation, anonymity and confidentiality, no harm to participants, and informed consent. When conducting interviews with respondents, all ethical principles were considered. The respondents were not being forced to participate in the study, and they were given the opportunity to do so freely. There was no harm caused to the participants, and they were participating with informed consent. To ensure that participants provide informed consent, the researchers describe the study's objective and supervise the data collection process to explain how the study was carried out. All the study participants, including those in this study, are appropriately informed about the purpose of the study, and their willingness and blessing are secure before the commencement of the distribution of the questionnaire. Regarding the right to privacy of the respondents, the study maintains the confidentiality of the identity of each participant.

CHAPTER FOUR

RESULTS AND DISCUSSION

4.1 Background Information of Respondents

This part shows the analysis of the survey data and the interpretation of the analytical findings. It describes the composition of the sample selected: household age, family size, marital status, education status, access to credit, farm land and livestock holdings, and income results.

4.1.1 Socio-Demographic Characteristics of the Respondent

The household characteristics, such as age, education level, family size, etc., differ from one household to the next. As indicated in Table 4.1, Item 1, in the age category of female-headed households, 54 (26.3%) were between the ages of 25-35, 69 (33.7%) were between the ages of 36 and 45; on the other hand, 51 (24.9%) were between the ages of 46 and 55, 23 (11.2%) were between the ages of 56 and 65, and the remaining 8 (3.9%) were above the age of 66. The maximum and minimum age of respondents is 25 and 76 years, respectively, and the mean age was 49.6 years.

As it can be seen in the same table, item 2 shows the educational status of the respondents, showing that the majority of respondents, 138 (67.3%) females, were unable to read and write, 44 (21.5%) FHH were able to read and write, and 21 (10.2) FHH had primary level education between grades 1–8 (1%) had secondary level education between grades 9–12.

Item 3 shows that regarding the marital status of FHH, 17 (8.3%) of females were single, and 129 (62.9%) were divorced. On the other hand, 59 (28.8%) were widowed. The study shows that the majority of female head households 62.9% of them were divorced by their husbands who had died.

As the same table item 4 shows family size of FHH, in 78 (38%) of female household heads, their family sizes were between 1 to 3, 95 (46.4%) were between 4 to 6, and 30 (14.6%) were 7 to 9. The remaining 2 (1%) were above 10. This study indicates that the majority of 95 (46.4%) of 'family sizes were between 4 to 6. The mean family size was 4.4, with 10 and 1 being the maximum and minimum, respectively.

Table4. 1: Socio Demographic Characteristics of Respondents

NO	Item	Group	Frequency	Percent
1	Age Category	25-35	54	26.3
		36-45	69	33.7
		46-55	51	24.9
		56-65	23	11.2
		Above 65	8	3.9
		Total	205	100
2	Educational Background respondents	Cannot read and write	138	67.3
		Can read and write	44	21.5
		primary level education (1-8)	21	10.2
		Secondary level education (9-12)	2	1
		Total	205	100
3	Marital status	Single	17	8.3
		Divorced	129	62.9
		Windowed	59	28.8
		Total	205	100
4	Household Size	1-3	78	38
		4-6	95	46.4
		7-9	30	14.6
		Above 10	2	1
		Total	205	100

Source: Own field survey, March, 2023

4.1.2 Economic Characterizes of Respondents

4.1.2.1 Agricultural Farm Land

Land serves as the primary source of income for all rural farm activities in an agricultural economy and is crucial for the production of both crops and livestock. Basically, the economy of the Goncha Siso Ense Woreda community depends on agricultural activities. The table shows that 195 (95.1%) of respondents have agricultural land for farming, whereas 10 (4.9%) respondents have no agricultural farm land.

Table4. 2: Agricultural farm land size of Respondents

Item	Response	Frequency	Percent
Do you have	Yes	195	95.1
land for you farming	No	10	4.9
	Total	205	100

Source: Own Field Survey, April, 2023

4.1.2.2 Size of Land Holding

The survey result shows that 23 (11.2%) households had less than 0.25 hectares of farmland, 72 (35.1%) of the sample households had 0.25–0.5 hectares of farmland, 78 (38% of sampled households) had 0.51–1 hectares of land, 20 (9.8%) households had 1.–1.5 hectares, 11 (5.4%) households had 1.5–1 hectare, and 1 (2%) household had above 2 hectares.

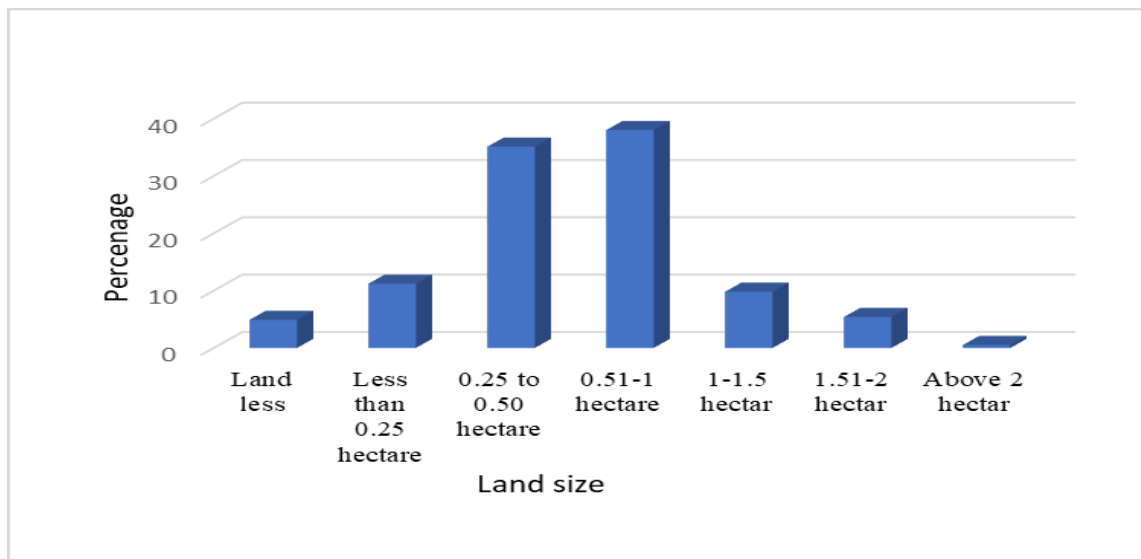


Figure 4.1: Farm land size of respondants

Source: Own field survey, April, 2023

4.1.2.3 Monthly Income of Sampled Respondents

Basically, the economy of the Goncha Siso Ense Woreda community depends on agricultural activities. In this study, each rural household's total income was broken down into its many sources, including farm revenue, which includes returns from all crop output and crop byproducts; livestock income, which includes returns from livestock (cattle, poultry), as well as livestock products (milk, eggs, and hides); off-farm income such as charcoal and firewood sales; pack animal sales; and non-farm income, which includes wage earnings from non-farm labor and income gained from non-farm enterprises like petty trade, which were significant sources of income. However, most households' income depends on RPSNP, which derives income from public works participation and direct support, which increases their non-farm income sources in the study area.

Table 4.3 shows the monthly income generated from livestock sales, crop sales, and non-farm income of the sample households. It shows that the income of RPSNP participants the monthly average income of households is 1400.98 ETB. The minimum income of households is birr 300 per month, while the maximum income of households was birr 5000 per month. The table indicated that 107 (52.2%), 77 (37.5%), 14 (6.8%), 14(6.8%), 5(2.4%), 2(1%) of respondents earn their monthly income of birr 300–1300, 1300–2300, 2300–3300, and greater than 4300, respectively.

Table 4. 3: Monthly Incomes of Respondents

Income in birr	Frequency	Percent
300-1300	107	52.2
1300-2300	77	37.6
2300-3300	14	6.8
3300-4300	5	2.4
Above 4300	2	1
Total	205	100

Source: Own Field Survey, April, 2023

4.1.2.4 Family labor

Table 4.4 shows 132 (64.4%) sampled households have enough family labor to do farm work. where 73 (35.6%) of sampled households do not have enough family labor to do farm work.

Table 4 4: Family labor force of Respondents

Item	Response	Frequency	Percent
Do you have enough family Labor force?	Yes	132	64.4
	No	73	35.6
	Total	205	100

Source: Own Field Survey, April, 2023

4.1.2.5 Agricultural Input Utilization

Increased production and productivity depend heavily on agricultural inputs, including fertilizers, better seeds, and agrochemical services. It was intended to boost the output and productivity of the input variable by using these inputs at the level at which it was specifically advised. A variety of inputs are used in crop production. Based on the study, 170 (82.9%) of the sampled households used modern agricultural inputs to maximize their farmland productivity. While the remaining 35 (17.1%) households did not use inputs, at the same time, among those modern input users, 16.6% of the sampled households used seeds only, and 3.4% of the sampled households used modern farming tools. However, the remaining 28.8% and 34.1% of the sampled households used only fertilizers and both fertilizers and seeds, respectively.

Table4. 5: Agricultural Input Utilization of the Respondents

Item	Response	Frequency	Percent
Did you use Agricultural input in the year 2022/2023 cropping season?	Yes	170	82.9
	No	35	17.1
	Total	205	100
If yes, what type of improved inputs did you use?	Fertilizer only	59	28.8
	Selected Seeds only	34	16.6
	Modern farming tools	7	3.4
	Fertilizer and seeds	70	34.1

Source: Own field survey, April, 2023

4.1.2.6 Market Access

The result showed that sampled households are located an average of 15.67 km away from the district market. The minimum and maximum market distances were 10 km and 20 km, respectively. The mean distance of RPSNP households' heads from the main market source

is 15 km. The survey result showed that households sell their products in different market centers. The majority of the sample households sold their products at a market in the district capital, *Gindewin* Town. This indicates that proximity to a market center could be assumed to increase the probability of sustaining livelihoods in general and household food security.

4.2 Implementation of RPSNP of the Study Area

The productive safety net as one component of food security programs has its own guidelines, objectives, principles, and institutional and management arrangements from federal to community levels to achieve the targeted goal of the program. However, in implementing the program at ground level, this section is concerned with the implementation of the program in the study such were mainly related to beneficiary targeting, beneficiary transfer, public work, and graduation.

4.2.1 Criteria of Selecting Households

Beneficiaries of the RPSNP are intended to be selected based on their vulnerability and ongoing food insecurity. The RPSNP objectives were taken into consideration during the targeting process. In order to prevent depletion at the home level and assist those households in creating assets at the community level, transfers should be made available to individuals who are food insecure on a temporary or chronic basis.

The table below shows that 41.8% and 40.2% of respondents were targeted as having the first selection criteria to participate in the RPSNP program was a few lands in Kola and Dega agro-ecological zones, respectively. Whereas 30.6% and 29% of respondents explained that households included in the program were those who had a small livestock population in the Kola and Dega agro-ecological zones, respectively. Besides, 20.5% and 28% of households confirmed RPSNP inclusion is based on other criteria, such as absolute poverty in the Kola and Dega agro-ecological zones, respectively. In other words, based on the table, the main selection criterion in Kola agro ecology is that most respondents were landless or had few lands. As opposed to Dega agro-ecological selection criteria, RPSNP participation is limited to a small number of livestock.

Table4.6: Criteria of Beneficiaries Selected for the RPSNP

Item	Response	Frequency				Percent	
Criteria of selecting RPSNP beneficiary	Labels	Agro ecology				Total	
		Kola		Dega		No	Percent
		No	Percent	No	Percent		
	Landlessness	7	7.1	3	2.8	10	9.9
	few livestock	30	30.6	31	29	61	59.6
	Few land	41	41.8	43	40.2	84	82
	Absolute Poverty	20	20.5	30	28	50	48.5
Total		98	100	107	100	205	

Source; Own field survey, April, 2023

According to key interviews and focusing group discussions, to generate assets at the community level based on this identification of those food insecure households held through critical assessment and to provide transfers for those households that are food insecure on a temporary or chronic basis while protecting asset depletion at the household level. Key informants reveal that gender aspects recommended by the implementation, especially for women and older people, are being implemented in the projects. In the RPSNP areas, male and female RPSNP participants are assigned similar tasks. The RPSNP implementation requires that attention be given to the nature of work that women are assigned to in RPSNP. Focus group discussions also revealed that special consideration is given to women regarding the nature of work that they are assigned to do in the program.

As obtained from the key informant interview woreda RPSNP office, based on selection criteria, Worda Councils, Worda Food Security Task Force (WFSTF), and Keble Councils, in collaboration with RPSNP, should choose households in the community as direct support beneficiaries and public work beneficiaries to provide its aid. Beneficiaries were chosen based on any specific standards; though number of livestock and farm land size. According to the Women's Child and HIV/AIDS Directorate, during my interviews with experts and directors, I thought that women beneficiaries of public works might help minimize gender inequality by arriving late and departing early. As another example of the program gender sensitivity, he added that "late arrival and early departure of women beneficiaries from public

works will reduce the work burden of women." The director disagreed with the women PW recipient informants' perceptions of women beneficiaries' tardy arrival and early departure.

4.2.2 Decision Makers on the Selection RPSNP Beneficiary Households

According to the survey, 62.4% of households said that the decision-makers in the selection of beneficiary households were the Keble Administration and the Kebele RPSNP Task Force. While 33.2% of households approved the selection of food-insecure households under the public work component, direct support was provided by local community leaders. Besides, 2% and 5% of the household selection was done by the Woreda RPSNP Office, and all task forces of community elders, adults of both sexes, and religious leaders were nominated in order to identify those with chronic and transitory food insecure households at the Keble level. This result is similar to the findings of (Yitagesu, 2014).

Generally, in this study, there is no single responsible body that targets households to join the program. The Keble Administration and RPSNP Task Force are the highest decision-making bodies responsible for the approval of RPSNP beneficiaries' lists, planned activities, and budgets. It works together with the woreda food security coordination office to prepare beneficiary lists before they are submitted to the region for final approval. With regard to the beneficiary selection procedure, consequently, focus group participants highlighted these complaints as follows: We are unaware of the selection procedure. The organizations in charge of choosing the houses are unknown to us. We can never predict what will happen with regard to targeting. This suggests that only implementing bodies are participants in the game, and recipients have no input on decision-making.

Table4.7: Decision Maker on the Selection RPSNP Beneficiary Households

Item	Response	Frequency	Percent
Decision Maker on the Selection of RPSNP Beneficiary Households	Woreda RPSNP Office	4	2
	Kebele administration and RPSNP task force	128	62.4
	Local community leaders	68	33.2
	All	5	2.4
	Total	205	100

Source: Own field survey, April, 2023

4.2.3 Family Members Included and Excluded in to RPSNP

As stated in the program implementation manual, a given household receives payment based on their family size. The survey result in the study area indicates that 78% of the beneficiaries assured that all household members benefited from the program for each household. While the remaining 22% of the respondents reported that not all household members benefited from the RPSNP program for each household, this result shows that with RPSNP implementation, the majority of households were all family members who were members of RPSNP. While the household excludes all RPSNP family members for different reasons.

Table4. 8: Inclusion and Exclusion of All Family Members to the RPSNP

Item	Response	Frequency	Percent
Do all of your family members Included in RPSNP?	Yes	160	78
	No	45	22
	Total	205	100

Source: own field survey, April, 2023

Focus group discussants revealed that households where all family members are not members of RPSNP. There are different reasons, such as children being born after RPSNP registration, corruption by kebele cabinets, insufficient payment or transfer to the kebele, large family size, divorce between couples, and children living outside the home. Households are not including RPSNP because of the large family size and insufficient payment of transfers.

4.2.4 Beneficiary Preference of Transfers

The survey result in Table 4.9 indicates that among the three categories given by the program to participants, namely, cash only, food only, and cash and food, 100% of households pay cash only. The reason behind preferring cash only is the fact that money makes it easy to buy anything at any time due to the market.

Table4. 9: Household Preference to Type of Transfer

Transfer type you prefer	Frequency	Percent
Cash only	205	100
Food only	-	-
Both	-	-
Total	100	100

Source: own field survey, April, 2023

The majority of respondents prefer to pay in cash. This implies that the interest of RPSNP beneficiaries regarding mode of payment varies from one geographical area to the other and the purchasing power of money also varies depending on the inflation situation in a given environment. But, contrary to this study, there is an implication that the RPSNP transfer in cash was not enough for the beneficiaries of the program in the study Woreda. This indicates the existence of a high price for commodities, including food items, and could make it difficult to ensure food security as expected (Muluembet , 2010).

4.2.5 Components of RPSNP Beneficiaries

Regarding the beneficiary category, the table shows that (62%) were households that face regular food shortages and that have members who are able-bodied (public workers), and (38%) were direct support. According to the survey results of this study, the majority of the RPSNP beneficiaries were public workers.

Table4.10: Program Category of the Respondents

Beneficiary Category of the program	Frequency	Percent
Public work	127	62
Direct support	78	38
Total	205	100

Source: Own field survey, April, 2023

4.2.6 Duration of Household Benefited in RPSNP

The survey results noticed that 29.8%, 65.4%, and 4.9% of respondent household heads benefited from the RPSNP program for less than five years, five to ten years, and more than ten years, respectively. This indicates that out of the total number, the majority of respondents who have stayed under the safety net program between 5 and 10 years are 65.4% (134 households). This table also indicates that more than 65% of household beneficiaries in the study areas have lived with the program for 5–10 years. Since the introduction of RPSNP, it is commonly assumed that a household is expected to be part of the program for five years until she is found to be eligible for graduation or when the household has become food secure.

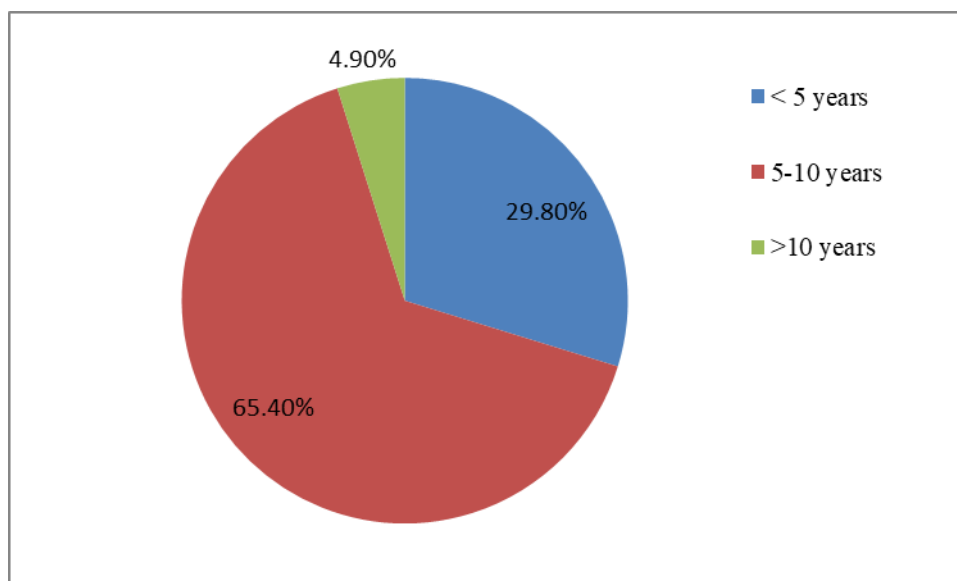


Figure 4.2: Duration of Household Benefited in RPSNP

Source: Own field survey, April, 2023

To support this, focus group participants stated that: We have been here with RPSNP since its introduction in Goncha Siso Ense Woreda. We secured our daily food and basic needs, but the tendency to graduate here is very low because we do not have sufficient financial power that could secure our family's life in the long run.

4.3 Contributions RPSNP of Food Security Status

Taking into account the overall livelihood effect of RPSNP, the majority (20%) of respondents stated that the food security status of households was highly improved after they became beneficiaries of the program and 47.4% of those sample households approved that their food security status after RPSNP intervention was fairly improved. While 32.6% of households assured me that their food security status had not improved, the survey assessed the overall households' opinion about their current food security status as compared to the status they had before RPSNP intervention. As can be seen from Table 4.11, the majority of the households indicated that they were living a relatively better life due to the intervention of RPSNP. This indicates that many households now have better food security than they had previously because to RPSNP. But it can also be understood that the program has never satisfied or brought about the required level of life improvement among some beneficiaries. This result is similar to the finding of (Gebresilassie, 2014; Welteji *et al.*, 2017).

Table 4. 11: Food Security Status of the Respondents after RPSNP

Item	Response	Frequency	Percent
Rate of food security status of after RPSNP Intervention	Highly improved	41	20
	Fairly improved	97	47.4
	Not improved	67	32.6
	Total	205	100

Source: Own field survey, April, 2023

4.3.1 Food Consumption Status of Households' Before and After RPSNP

In the study area to analysis the contribution of RPSNP on household food consumption was by using analysis of food security status of household independently before and after joining to RPSNP. As table 4.12 below shows, among the total 205 households under study, after joining to the program, as majority of respondents (63.9%) reported that their families used to eat 2 times per day before joining to the program while after joining RPSNP, 21% of households responded that their family members are eating 2 times in a day. Moreover, in the study area 51% of households, used to eat three times a day before joining to the program however the percent increased to 75.6% after joining to RPSNP in this regard.. when observing the contribution of RPSNP on food security status the change was observed on those used to eat two times (it declines from 63.9% to 21 %) and on those who eat three times (increased from 51% to 75.6%). However, there was decline on large frequency of those who eat as obtained from 1.5% to 51.6% after joining RPSNP. Therefore, from this one can understand that the program brings significant positive impacts on food intake status of the households. This result is supported by (Ayana & Haji, 2017; Mussa, 2017).

Table 4. 12: Number of Time in a Day Feed their HH after and Before RPSNP

Item	Response	Before joining RPSNP		After joining RPSNP	
		Frequency	Percent	Frequency	Percent
Food consumption status	One times a day	20	9.8	3	1.5
	Two times a day	131	63.9	43	21
	Three times a day	51	24.9	155	75.6
	As obtained	3	1.5	4	52
	Total	205	100	205	100

Source: Own field survey, April, 2023

4.3.2 Food supply change After RPSNP

The survey describes 82.9% of respondents were food supply change by RPSNP intervention. While 17.1% of respondents were not changing their food supply comparing before RPSNP intervention.

4.4 Food Security Status of Households

Food security is a multidimensional concept sufficiently challenging not only the operationalization effort of it but also the decisions of who is food secure and who is not. For instance, the hugely acclaimed definition of FAO suggests considering the availability, access, utilization, and stability aspects in the determination of the state of food security. The scholars' suggestion for a need to consider the subjects perceptions regarding their food security or insecurity situation when it comes to measurement also adds a brick to the complexity of an already complex enough problem (Maxwell et al., 2013). The FAO-adopted and extensively promoted World Food Summit definition of food security includes a number of crucial components or dimensions, many of which are challenging to quantify individually but almost impossible to quantify altogether using a single indicator. This may emphasize the issue more clearly. The current study utilized the household food insecurity access scale (HFIAS) and the food consumption score (FCS) as the main food security measures indicators and the reduced coping strategy index (rCSI) as supplements for cross-validation. The results of the investigation have been discussed here under Measurements of Household's food security status.

4.4.1 Households' food security status with HFIAS

The fundamental premise of the HFIAS technique is that experiencing food insecurity results in predictable reactions and behaviors that can be recorded, quantified, and summed up on a scale. The analysis of HFIAS-based data generally yields four pieces of information: information on conditions, domains, prevalence, and scale score (Atara, 2020). The summary of the results of the survey along with each occurrence of the instrument (see appendix 5).

According to the survey's result, 83.9% (172) of the polled families expressed some level of concern that their particular households would run out of food or would not have enough food to eat. This indicator's sub-question is thought to reflect the stability aspect of food security from a domain perspective (Maxwell *et al.*, 2013). The summary of the household's responses to three occurrence questions (unable to eat preferred food, eat just a few kinds or a

limited variety of foods, and eat foods they really do not want to eat) that represent insufficient quality domain in the words also shows an undesirable picture (Atara, 2020). Under this category, 76.6% (157) of the surveyed households reported that they ate less preferred food at least once over the last 30 days preceding the date of the survey. On the other hand, 69.3% (142) and 55.6% (114) of the surveyed households reported that they ate foods that are imitated and those that they don't actually eat want to eat, respectively, at least once within 30 days. The findings regarding this insufficient quality domain of HFIAS are also in agreement (Atara, 2020) (see appendix 5).

In the case of the present study, 46.3% (95) of the surveyed households reported that their respective households had a smaller meal at a different level of frequency. The proportion of respondents with a “yes” answer to the questions “Was there ever a time that 1) no food of any kind to eat in the household, 2) any member of the household goes to sleep hungry, and 3) any number of households go a whole day and night without eating?” is 22% (45), 17.6% (36), and 14.1% (29) respectively. The result has been summarized in table 4.14.

Table4. 13: HFIAS based food security/insecurity level categorization scheme

Occurrence Question		Household's Response	Frequency		
			Rarely	Sometimes	Often
1	Worry Domain	Yes			
2	Insufficient quality domain	Yes			
3		Yes			
4		Yes			
5	Insufficient quantity domain	Yes			
6		Yes			
7		Yes			
8		Yes			
9		Yes			
Key		Food secure	Mildly food insecure	Moderately food insecure	Severely food insecure

Based on this categorization rule and with the support of ‘*compute variable*’ option of SPSS version 20, the current study has determined food security/insecurity status of the surveyed households and the result has been summarized in the Table 4.14

Food secure: rarely worries or encounters none of the factors related to food insecurity (access).

Mildly food insecure: A household that experiences some minor food insecurity is concerned about running out of food. Sometimes or frequently, and/or cannot eat favorite meals, and/or consumes a more monotonous diet than wanted, and/or occasionally consumes some items deemed undesirable. However, it neither reduces the amount nor exhibits any of the three most serious symptoms.

Moderately food insecure: a household has started to reduce quantity by reducing the size of meals or the number of meals, rarely or occasionally, and/or has started to sacrifice quality by eating a repetitive diet or unappealing foods more regularly.

severely food insecure: it has experienced any of the three most severe conditions running out of food, going to bed hungry, or going a full day and night without eating even infrequently as rarely over the course of the previous four weeks (30 days). The food security of households was evaluated.

Table 4.14: Household Food Security Status by (HFIAS)

House hold food security status by (HFIAS)	Frequency	Percent
Food secured	33	16.1
Mildly food insecure	74	36.1
Moderate food insecure	65	31.7
Sever food insecure	33	16.1
Total	205	100

Source: Own Field survey, June, 2023

The HIFAS result shows that 33 (16.1%) of respondents are food secure. In the mildly food insecure category, 74 (36.1%) and also, in the moderately food insecure category, 65 (31.7%). While the rest, 33 (16.1%), were severely food insecure, finally, according to the FAO in HFIAS, food secured and mildly insecure foods were considered food secure. While moderate food insecurity and severe food insecurity were considered food insecurity, Therefore, 107 (52.2%) of the surveyed households were food secure. While 98 households (47.8%) were food insecure.

4.4.2 Households' Food Security Status by Food Consumption Score (FCS)

A composite value called the food consumption score (FCS) is based on factors like dietary variety, food frequency, and the relative nutritional relevance of various food groups are used as a weight in the computation of the composite score. According to WFP, computing the food consumption score for each household requires 1) grouping food items into 12 standard food groups with a maximum consumption frequency value of 7 days/week; 2) multiplying the consumption frequency of each food group by nutrition content-based assigned weight to each food group; and 3) summing up the resulting values to obtain the food consumption score (FCS). For the current study, households were also asked about the frequency of consumption of different food items during the seven days preceding the date of the survey. Using the collected data. The following equation summarizes the method used in the computation of the FCS.

$$FCS_i = \sum (w_{Xj}) (f_{Xji}) \text{ ----- (equation 4.1)}$$

Where,

FCS_i = Food consumption score for household

w_{Xj} = Nutrition content-based weight for food group X_j

f_{Xji} = Frequency of consumption (number of days a food group consumed) of a food group X_j by a household.

The analysis of food security of households with food consumption scores yields categorical information regarding the level of food consumption achieved on the basis of relative FCS achieved. Households can be classified into three categories: individuals with low consumption, borderline consumption, and acceptable consumption. WFP finds the following thresholds to be applicable in a wide range of situations: Poor food consumption: 0 to 21 Borderline food consumption: 21.5 to 35, and acceptable food consumption: > 35.

As the summarized data in the survey shows, almost all of the surveyed households (99%) consumed Cereals and tubers surveyed in 21% of households were consumed. When it comes to vegetables, only 63.9% of the surveyed households consumed them for 5 or more days within a 7-day period. Nevertheless, a sizable majority of the homes in the study 35.7% (150) had consumed food items from this group for 3–4 days within 7-day period (see appendix 6).

Table 4.15: Household Food Security Status by (FCS)

Household Food Security Status by (FCS)	Frequency	Percent
Poor Consumption	42	20.5
Borderline Consumption	51	24.9
Acceptable Consumption	112	54.6
Total	205	100.0

Source: own field survey, June, 2023

Information summarized in table 4.15 shows that 20.5% of the surveyed households had poor consumption. The majority, 54.6% of the households, had an acceptable consumption level. The proportion of households with borderline consumption is 24.9%. If only those households with acceptable consumption are taken as food secure. While borderline and poor consumption were food insecure, 54.6% households were food secure. While 45.4% households were food insecure.

4.4.3 Households' food security status with reducing coping strategies Index (rCSI)

In the past 7 days, was there a time your households used the following coping method as a response to a food shortage. People facing the problem of food shortages make strategic decisions about how to meet their needs. These decisions and actions are what are commonly called coping strategies. The sample households were reminded of the number of days taken within a week for each internationally accepted coping strategy, and nearly all of them have reported that they have adopted at least one mechanism.

Reduced Coping Strategy Index was developed based on the five-consumption based coping strategies and the associated weights (see appendix 9).

$$rCSI_i = \sum (fX_{ji}) (wX_j) \dots \dots \dots (\text{equation 4.2})$$

Where,

$rCSI_i$ = reduced coping strategy index for household i

fX_{ji} = number of times (frequency) coping strategy X_j was used by household i within 7 days preceding the date of survey

wX_j = severity weight attached to coping strategy X_j .

Table 4.16 shows that the majority 93 (45.4%) of the households were food secure, and 52 (25.4%) households were moderately food insecure. While 60 (29.3%) households were severely food insecure, 112 (54.6%) households were food insecure.

Table4. 16: Food Security Status by rCSI

Household Food Security Status	Frequency	Percent
Food secure	93	45.4
Moderately food insecure	52	25.4
severely food insecure	60	29.3
Total	205	100

Source: own field survey, June, 2023

4.4.4 Cross Tabulation of HFIAS, FCS and rCSI

Cross-validation was done by running simple bivariate correlation analysis using the continuous scores of the three indicators (rCSI, FCS, and HFIAS), and the result has been summarized in table 4.17 measure of non-parametric relationship strength that is comparable to Pearson's r, was used to assess the strength of the correlation between the indicators. The HFIAS and rCSI scales were adjusted so that a higher score indicates greater food insecurity; thus, inverse correlations among some of these indicators were expected. As shown in the table of pooled correlations, FCS, rCSI, and HFIAS are particularly well correlated. As would be expected, the FCS measuring dietary diversity is much more strongly correlated with the HFIAS or rCSI.

Table4. 17: Correlations of FCS, HFIAS, and rCSI

		FCS	HFIAS	rCSI
FCS	Pearson Correlation	1	-.559**	-.416**
	Sig. (2-tailed)		.000	.000
	N	205	205	205
HFIAS	Pearson Correlation	-.559**	1	.439**
	Sig. (2-tailed)	.000		.000
	N	205	205	205
Rcsi	Pearson Correlation	-.416**	.439**	1
	Sig. (2-tailed)	.000	.000	
	N	205	205	205
**. Correlation is significant at the 0.01 level (2-tailed).				

Source: own field survey, June, 2023

Theoretically, for the data collected from the same community or empirical context, the FCS score is expected to be negatively correlated with both HFIAS and rCSI scores. On the other hand, households' scores on HFIAS and rCSI are supposed to be positively correlated. This is because, whereas the higher scores of HFIAS and rCSI indicate greater food insecurity as compared to the lower scores, the reverse works for food consumption scores (FCS). In the case of the present study, the findings of the correlation analysis presented in table 4.17 perfectly confirm these theoretical expectations. FCS is negatively and significantly correlated with both HFIAS ($r = 0.559$, $p < 0.001$) and rCSI ($r = -0.416$, $p < 0.001$). As expected again, HFIAS is positively and significantly correlated with rCSI ($r = 0.439$, $p < 0.001$). Moreover, the level of correlation among the variables is also strong. This finding is also in line with the findings of Maxwell, whose study focused on examining how the different food security indicators compare (Maxwell *et al.*, 2013).

Table 4 18: Households Food Security Status by Cross-Validation of HFIAS and FCS

			FCS Based food security status		Total
			Food insecure	food secure	
HFIAS Based food security status	food insecure	Count	47	15	62
		% within HFIAS based food security status	75.8	24.2	100
		% of Total	23	7.3	30.3
	food secure	Count	46	97	143
		% within HFIAS based food security status	47.7	50.3	100
		% of Total	22.4	47.3	69.7
		Count	93	112	205
Total		% of Total	45.4	54.6	100

Source: own field survey, June, 2023

Food security status result

The survey shows, the majority of 108 (52.7%) respondents were food secure. while 97 (47.3%) of households were food insecure. The above table shows that the majority of

sampled households (84% of respondents) have a better change in household assets after RPSNP intervention, while 15.1% of respondents have no change in assets after RPSNP. Key informants said that the cash transfer that is being made from the RPSNP program to beneficiaries is really changing the recipient's asset accumulation as they developed a culture of purchasing some sort of animal right after they withdraw the money, and they are also always advised to spend the money in the right place.

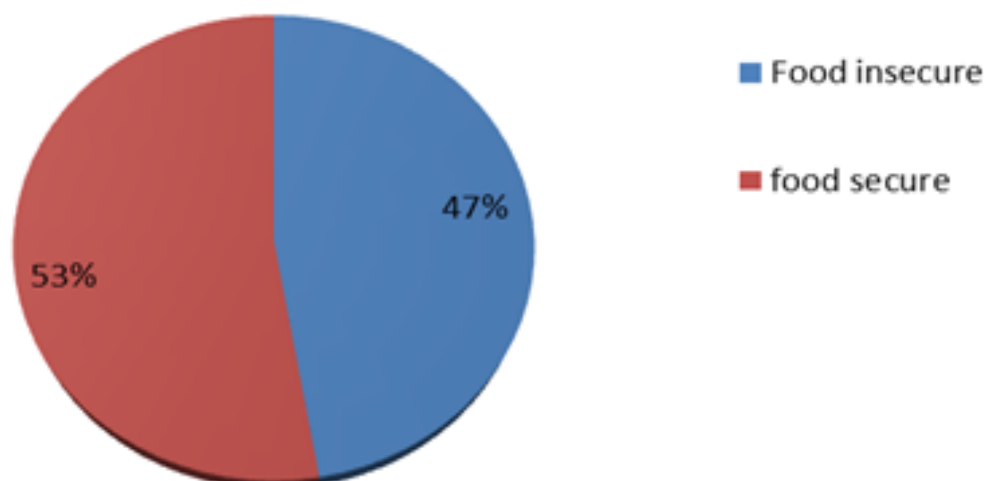


Figure 4.3: Food security status of households

Source: Own field survey, June, 2023

4.5 Econometric Result

4.5.1 Binary Logistic Regression Results

The binary logistic regression model was employed to estimate the effects of the hypothesized independent variables on food security status and asset accumulation in households. A logistic regression model was used to identify determinants of food security. As a result, the model included tests of variables thought to have an impact on household food security in various scenarios. A binary logistic model was tested to estimate whether variables representing determinants of household's food security status and asset building had a significant level of total rural households along with rural households/homestead

characteristic variables. Under this section, determinants of the household's food security status that were hypothesized and fitted to the model were analyzed.

4.5.1.1 Test for fitness of Model

Once the data entry was done, the researcher processed variables, which are assumed to be the factors that affect household food security status and asset building. It was identified by applying Hosmer and Lemeshow, as the explanatory variables were statistically significant at the test (p-value 0.727), which indicates that binary logistic regression fits the data well. As a result of this, the goodness-of-fit test of the model was good because the significant levels of the independent variables were found within the range of best fit. While omnibus tests of the model coefficient are used to test the model fit. If the model is significant ($p = 0.00$).

Hosmer and Lemeshow Test			
Step	Chi-square	Df	Sig.
1	5.287	8	.727

The Hosmer and Lemeshow Test statically indicate a good fit if the significant value is > 0.05 . Here, the model adequately fits the data; $p = 0.727$

Omnibus Tests of Model Coefficients				
		Chi-square	df	Sig.
Step1	Step	103.204	25	.000
	Block	103.204	25	.000
	Model	103.204	25	.000

Omnibus tests of the model coefficient are used to test the model fit. If the model is significant, this shows that $p = 0.00$ there is a significant improvement in fit as compared to the null model; hence, the model is showing a good fit. Estimation terminated at iteration number because parameter estimates changed by less than 0.001.

Dependent Variable Encoding

Original Value	Internal
Food insecure	0
food secure	1

Table4. 19: Binary Logistic regression Result

Independent variables		Coefficient (B)	S.E.	Sig.	Odds ratioExp (B)	95% C.I. for EXP(B)	
						Lower	Upper
Age Group	Age(25-35)						
	Age (36-45)	.223	.758	.027**	1.250	.283	5.525
	Age 44-55)	.565	.750	.451	1.760	.405	7.657
	Age (56-65)	-.693	.767	.366	.500	.111	2.248
	Age (>65)	.262	.823	.750	1.300	.259	6.520
Marital status	Single(ref)						
	Divorce	.152	.551	.783	1.164	.395	3.429
	Windowed	.205	.315	.515	1.227	.662	2.274
Education level	Can't read & write						
	Can read & write	2.05	1.458672	.041**	2.851085	1.045968	7.771449
	Gread (1-8)	0.71	.3772602	.478	.6706351	.222664	2.019867
	Gread (9-12)	0.84	.4209949	.491	.2710826	.0129174	5.68891
Houshod size	1-3						
	(4-6)	1.299	.553	.013***	3.666	1.240	10.843
	Above 6	1.506	.511	.003***	4.510	1.657	12.277
Total TLU		.340	.088	.000***	1.405	1.182	1.669
Farm land Size		1.111	.331	.001***	3.038	1.588	5.812
Ox ownership	yes	1.197	.348	.001***	3.309	1.674	6.538
Agricultural input use	yes	2.251	.585	.000***	9.497	3.017	29.900
Family labor force	yes	.855	.418	.041**	2.351	1.036	5.336
Annual Production		.127	.036	.000***	1.136	1.058	1.219
Extension service access	yes	.811	.334	.015	2.249	1.169	4.327
Monthly income FHH		.001	.000	.002***	1.001	1.000	1.001
Irrigation accesses	yes	1.663	.406	.000***	5.276	2.381	11.688
Market access	yes	-.092	.293	.754	.912	.513	1.621
Accesses training RPSNP	yes	.618	.452	.172*	1.855	.764	4.503
RPSNP program type	Direct support	-.591	.289	.041**	.554	.314	.977
Credit access	yes	-.508	.286	.076*	.602	.343	1.055
Agricultural Shock	yes	-.970	.477	.042**	.379	.428	1.455
Constant		2.411	2.463	.328	11.146		

***, **, * indicates significant at 1%, 5% and 10% probability levels respectively.

Source: Own field survey, July 2023

Based on the factors considered in the model, the output of the binary logistic model used showed that fifteen variables were identified as significant variables. Age of the household head, household size, farm land size, agricultural input usage, total annual production, income of household heads, total tropical livestock, ox ownership, and family labour force Access to credit, access to irrigation, access to extension services, Agricultural shocks significantly affected household food security.

Age of household head: Age (36- 45) of female household head at a significance level of ($p = 0.027$) and more likely food secure. But categorically, as we see in the above table 4.19 Age (44-55), Age (56-65) and Age (>65) would not make significant contributions to food security ($p = 0.451, 0.366, \text{ and } 0.750$) respectively. This shows that as the age of the household increases, could be less likely to be food secure. This result is more or less similar to the result of (Fikire & Bekele, 2014; Mamo, 2011).

Educational status of household head: The educational level of the Household head affects food security status. Household are able to read and write, it was found significant at a significance level of less than 5%. ($p= 0.041$) and more likely to food secure. But categorically, primary-level (Gread1-8) would not make significant contributions ($p = 0.478$), and secondary-level (Gread8-12) $p = 0.491$ would not make significant. This study agreed with the previous studies done by (Beyene & Muche, 2010).

Household family size: Among the important demographic variables, family size is highly significant in determining the probability of farm households' food security in the study area. The household size number (1-3) and above 6 is significant at ($p=0.013, 0.003$) respectively. The sample household's average agricultural production and other income-generating activities can be increased. The effect of family size on household food security is positive. Controlling all other factors, households with a large family size tend to have a strong relationship with food security. Households with a high number of families were more likely to have food security. The reason might be that households with more members may have a higher probability of work division between them in order to maximize their income. Since households with a larger family size can perform various agricultural activities without a labor shortage, Hence, households with a large family size were more food secure than households with a small number of family members. This result is similar to the findings of the study conducted (Mamo, 2011; Tibeso, 2013).

Access to agricultural inputs: This variable is found to have a positive influence on the food security status at a probability level of less than 1%, $p=0.000$. Positive and significant relationship was found between access to farm inputs and the probability of household food security. This means that RPSNP beneficiary households with access to agricultural farm inputs are more likely to food secure than households with no access to farm inputs. The result indicates that the probability of a household's food security increases by a factor of 9.497 at farm households, fertilizer use increases by one unit, while keeping all other variables constant. This result is more or less similar to the result of (Fikire & Bekele, 2014; Mamo, 2011).

Size of livestock holding in TLU: The result of the logistic regression model revealed that the coefficient of size of livestock holding (TLU) has a positive influence on the food security status and is highly significant at less than 1% probability level (0.00), and the odds ratio in favor of being food secure increased by a factor of 1.405 when other factors remained constant. Livestock contribute to the food security status of households in different ways, such as by providing cash income, nutrition (meat, milk, etc.), draft power, manure, etc. in the study area. Also, livestock served as a savings of assets and was used to cope with food insecurity problems during food shortages. The positive is explained by the fact that households with large had a better chance of earning more income from livestock production. This in turn enabled them to purchase food when they were short of their stock and invest in the purchase of farm inputs that increase food production, thus ensuring food security at the household level. It was hypothesized that households that owned larger livestock in TLU were less likely to be food insecure than households that owned no or smaller livestock in TLU. The possibility that households in the study area will have access to food was found to be positively and highly substantially correlated with the total quantity of livestock holdings. This result is in agreement with the prior expectation and the findings of (Beyene & Muche, 2010).

Farm land size: The coefficient of farm size had a positive impact on the probability of food security status of households in the study area and was found significant at the 1% probability level ($p = 0.001$). In this sense, the larger the cultivated land, the higher the probability of food security for farm households. This means that farm households, due to their ownership of a larger amount of cultivated land, would have a higher probability of producing more food and cash products than households with a smaller amount of cultivated land. In this

study, all other factors were kept constant. As the size of cultivated land increased by one hectare, the odds ratio in favor of being food secure increased by a factor of 3.038, implying that the size of cultivated land has a positive influence on food security status. Moreover, it indicated that the size of land cultivated as a basic input in farming was significantly associated with the food security status of a household. This study is lined (Beyene & Muche, 2010).

Extension services: The influence of extension services on household food security was found to be positive. Controlling all other factors, households with extension service tend to have a strong relationship with graduation. As extension service increases, food security also increases by a factor of 2.249 at a significance level of 1% ($p = 0.015$) at the probability level. This indicates that households with more extension advice are more likely to be food secure than households with less extension advice.

Total crop production: The effects of annual crop production on as an extension, household food security status were found to be positive and highly significant at a less than 1% probability level ($p = 0.00$). Controlling all other factors, households with higher production tend to have a strong relationship with food security, as the number of units of production increases by a factor of 1.136. As a result, households with higher annual crop production are more likely to be food secure than households with low annual crop production.

Irrigation access: The result of the binary logistic model had a positive impact on the probability of food security and irrigation access among the farm households. In this study, it was significant at a less than 1% probability level ($p = 0.00$). This implies that farm households with irrigation access have a greater chance of being foods secure than those who do not. The result of this study revealed that, with all other factors remaining constant, the odds ratio in favor of being food secure increased by a factor of 5.276 as a farm household's access to irrigation increased by one unit.

Agriculture shock (climate shock): The model revealed that the agricultural shock of the household had a probability level of less than 5% ($p = 0.042$) and showed a negative relationship in explaining the household food security status. If all other things were held constant, the odds ratio in favor of being food secure showed an increase in the size of the shock by one-unit, decreased food security, or increased food insecurity by a factor of 0.379 units. Food security is dependent on agricultural production, making households vulnerable

to agricultural risk and the occurrence of different shocks like drought, flood, snow, and unseasonal events. Crop and livestock diseases are limitations of agricultural inputs.

4.5.2 Food Security Status of Household by Agro-Ecology zone

The food security status of female headed households by measuring food security measurement HFIAS, FCS and rCSI. Illustrated in table 4.20 below 98 (48%) respondents were lived in kola agro ecology zone and 108 (52.1%) of respondent households were lived in Dega agro-ecology of the woreda. It shows more of RPSNP beneficiaries lived in Dega agro ecology 21.8% of food secured households were lived in Dega and 24.5% of food secured households were lived in kola agro ecology zone. While 23.9% households were food insecure lived in Dega agro ecological zone and 23.5% of respondents were food insecure in kola agro ecological zone. Both food secure and food insecure households were lived in Dega agro-ecology rather than kola agro ecology zone.

Table4. 20: Food Security Status of Household Heads by Agro-Ecology zone

Agroecology	Keble name		Food security status of households		
			Food insecure	Food secured	Total
Kola	Derit	No	41	30	71
		%	20	14.7	34.7
	Arasma	No	7	20	27
		%	3.5	9.8	13.2
	Total	No	48	50	98
		%	23.5	24.5	47.9
Dega	Goshera	No	26	44	70
		%	12.7	21	34.1
	Eneget	No	23	14	37
		%	11.2	6.8	18
	Total	No	49	58	107
		%	23.9	21.8	52.1
Total		No	97	108	205
		%	47.3	52.7	100

Source: own field survey, August 2023

4.6 Contribution of Productive Safety Net Program on Asset Building

The main objective of RPSNP is to improve the food security status of the beneficiaries by creating assets and, at the same time, preventing their depletion. According to the implementation manual of RPSNP, the idea of protecting asset holdings of beneficiaries Households: when households become food insecure, they are forced to sell their assets to meet their food expenditures. Therefore, the objective of RPSNP is to assure food consumption, prevent asset depletion, and create assets for food-insecure households.

4.6.1 Contribution Productive Safety Net Program on Livestock Asset

RPSNP plays a critical role in preventing the sale of livestock and even in obtaining a new livestock asset through the recipients' household package. Table 4.21 shows respondents' livestock holdings before and after the intervention of RPSNP for the main livestock types reared by sample households.

Table4. 21: Livestock status of households before and after RPSNP

Livestock	Number of livestock before RPSNP						Number of livestock after RPSNP					
	1-3		4-6		>6		1-3		4-6		>6	
	NO	%	NO	%	NO	%	NO	%	NO	%	NO	%
Cow	74	36.1	-	-	-	-	136	66.3	-	-	-	-
Oxen	66	32.2	-	-	-	-	118	57.6	-	-	-	-
Sheep	22	10.7	-	-			37	18.0	15	7.3	-	-
Goat	34	16.6	8	3.9	-	-	69	33.7	31	15.1	4	2
Horse	3	1.5	-	-	-	-	5	2.4	1	0.5	-	-
Mule	-	-	-	-	-	-	-	-	-	-	-	-
Donkey	6	2.9	-	-	-	-	23	11.2	1	0.5	-	-
Bull	5	2.4	-	-	-	-	12	5.9	-	-	-	-
Heifer	6	2.9	1	0.5	-	-	13	6.3	4	2	-	-
Hen	59	28.8	8	3.9	4	2	33	16.1	54	26.3	22	10.7
Beehive	3	1.5	-	-	-	-	24	11.7	2	1	-	-

Source: own field survey, June, 2023

As table 4.21 illustrates, as we can see in the above table before joining RPSNP, 36.1%, 32.2%, 10.7%, 16.6%, 1.5%, 2.9%, 2.4%, 2.9%, 28.8%, and 1.5% of respondents were those who had cow, ox, sheep, goat, horse, donkey, bull, heifer, hen, and beehive, respectively. While after joining RPSNP, RPSNP increased to 66.3%, 57.6%, 18.0%, 33.7%, 2.4%, 11.2%,

5.9%, 6.3%, 16.1%, and 11.1% for those cows, oxen, sheep, goats, horses, donkeys, bulls, heifers, hens, and beehives, respectively. After joining and benefiting from RPSNP, the average number of livestock assets increased by 3.51 of the livestock assets before joining RPSNP. The result clearly shows the productive safety net program contributed to increasing the livestock assets of RPSNP beneficiary household heads.

As a result, this indicates that in the study area, after joining RPSNP, households had a higher livestock population than before joining the program. In principle, more livestock produce more milk, milk products, and meat for direct consumption, and owners could be more food secure. Besides, this enables farm households to have a better chance to earn more income from livestock production, which enables them to increase their purchasing power of food during food shortages and could invest in the purchase of farm inputs that increase food production and enable them to ensure food security. Hence, this empirical finding supports that larger household holdings are an important source of income in explaining the probability of being food secure in the study area.

According to woreda RPSNP office, the program has taken any action regarding the creation of livestock assets for the beneficiaries since there is access to credit or any other livelihood package program that distributes livestock or lends money to buy livestock without making the initial It is obvious that the transfer (food aid) provided for beneficiaries led them to buy livestock; rather, it might help them to prevent their holding assets from depletion for those who own livestock capital. Therefore, in this instance, it is better to look at RPSNP's impact by looking at respondent's livestock holding status in both time spans.

Table4. 22: Livestock Asset Before and After Joined and Benefited RPSNP in TLU

Item	N	Mean	SD
Livestock asset before benefited RPSNP inTLU	205	1.3191	1.39748
Livestock asset after Benefited RPSNP in TLU	205	4.8382	3.83830

Source: own field survey, June, 2023

As table 4.22 illustrates, the mean of livestock assets in TLU per household were 1.3191 and 4.8382 before joining and benefited RPSNP, and after joining and benefited RPSNP, respectively. After joining and benefiting from RPSNP, the average number of livestock assets in TLU increased by 3.51 times the mean of livestock assets before joining RPSNP. The result clearly shows the productive safety net program contributed to increasing the

livestock assets of RPSNP beneficiary household heads. According to focus group discussions and key informant interviews, RPSNP helped RPSNP beneficiary households maximize their livestock assets by facilitating increased loan and credit accessibility and availability and by providing consultants to help strengthen the capacity of loan beneficiary RPSNP household heads to answer questions like how to choose profitable and manageable different income generation activities. This result same with (Zena, 2013).

4.6.1.1 Pared T -test result of Livestock Asset

Pared T-was used to measure the significance of RPSNP in asset accumulation before and after RPSNP targeted. Table 4.23 shows that mean difference between livestock asset after RPSNP and before RPSNP is very close to 0 (2.05e-08), which suggests that, on average, there is almost no difference between these two variables. The p-value for the null hypothesis ("Ho") is 0.5000, which is greater than the typical significance level of 0.05. Therefore, fail to reject the null hypothesis, indicating that there is no statistically significant difference between the two groups. In summary, based on this paired T-test, there is no evidence to suggest that "Livestock asset score after RPSNP and before RPSNP have a no significant mean difference. Therefore, the paired sample T-test result evidenced that there is not significant variations between livestock owned in TLU before and after participation in rural productive safety nets program at $p > 0.05$ $P>|t| = 0.5$. However, in the previous discussion in descriptive result RPSNP is increase livestock amount compare from before RPSNP, and key informants and Focus group participants reflect that after RPSNP there are more livestock ownership before benefit RPSNP. This result is contrary with (Berlie, 2018).

Table4. 23: Paired T test result livestock Asset before RPSNP and After RPSNP.

Variable	Obs	Mean	Std. Err	Std. Dev.	P> t 	[95% Conf. Interval]	
Livestock Asset beforeRPSNP	205	1.00E-08	0.061862	0.885728	0.5	-0.12197	-0.11417
Livestock Asset After RPSNP	205	-1.04E-08	0.057904	0.829062	0.5	-0.11417	-0.11417

Source: own field survey, July, 2023

4.6.2 Contribution of Productive Safety Net Program on Farm Equipment's Asset

Household farm material assets include all assets used to produce crops, such as ploughs, pickaxes, hoes, mophers, yokes, shovels, and saws.

Table4. 24: Households' Farm Material Asset Before and After Joining RPSNP

Farm Equipment	Number of farm Equipment's before RPSNP							Number of farm Equipment's after RPSNP						
	1-3		4-6		>6		Mean	1-3		4-6		>6		Mean
	No	%	No	%	No	%		No	%	No	%	No	%	
Plough	12	5.9	-	-	-	-	0.0585	101	49.3	-	-	-	-	0.4927
Axe	13	6.3	2	1	-	-	0.0927	103	50.2	2	1	-	-	0.5317
Hoe	30	14.6	-	-	-	-	0.1463	114	55.6	4	2	-	-	0.6146
Mopher	39	19	6	2.9	-	-	0.2780	110	53.7	9	4.4	-	-	0.6341
Yoke	25	12.2	-	-	-	-	0.1220	108	52.7	2	1	-	-	.5463
Saw	22	10.7	-	--	-	-	0.1073	75	36.6	1	0.5	-	-	0.3756
Shovel	24	11.7	--	-	-	-	0.11710	92	44.8	-	-	-	-	0.4732

Source: own field survey, 2023

Table 4.24 show that the respondents who owned production materials before joining productive safety net program were: plough (5.9%, mean = 0.05), axe (6.3%, mean = 0.092), hoe (14.6%, mean = 0.14), mopher (19%, mean = 0.27), and yoke (12.2%, mean = 0.12). Shovel (11.7%, mean = 0.11) and saw (10.7%, mean = 0.10) after joining the program both material owners and the mean value of their production materials increased. After joining the program, the production materials owned by the respondents are: plough (49.3%, mean=0.49), axe (50.2%, mean=0.53), hoe (55.6%, mean=0.61), mophere (52.7%, mean=0.63), and yoke (53.7%, mean=0.54). Shovel (44.8%, mean = 0.47) and saw (36.6%, mean = 0.37) this indicates that a productive safety net program is important to households' farm material asset building in the study area. According to the survey results in the study area, the productive safety net program helps create additional farm production materials.

This result same with (Zena, 2013).

4.6.2.1 Pared T –test result of Farm equipment asset

Table 4.25 shows that the mean difference between Farm Equipment after RPSNP and before RPSNP is very close to 0 (1.18e-08), which suggests that, on average, there is almost no difference between these two variables. The p-value for the null hypothesis ("Ho") is 0.5000, which is greater than the typical significance level of 0.05. Therefore, fail to reject the null hypothesis, indicating that there is no statistically significant difference between the two groups. In summary, based on this paired T-test, there is no evidence to suggest that Farm Equipment after RPSNP and before RPSNP have a significant mean difference. The paired

sample T-test result evidenced that there are not significant variations between farm equipment before and after participation in safety nets program intervention at $P > |t| 0.05$. However, in the previous discussion in descriptive result RPSNP is increase farm equipment compare from before RPSNP, and key informants and Focus group participants reflect that After RPSNP there are more livestock ownership before benefit RPSNP. This result is contrary with (Berlie, 2018).

Table4. 25: Paired T test result Farm equipment before and After RPSNP

Variables	Obs	Mean	Std. Err	Std. Dev.	P> t	[95% Conf. Interval]	
Farm equipment after RPSNP	205	-1.08e-09	.0667738	.9560553	0.50	-.1316553	.1316553
Farm equipment after RPSNP	205	-1.29e-08	.0654727	.9374265	0.50	-.12909	.12909

Source: own field survey, July, 2023

4.6.3 Contribution of productive safety Net program on House equipment's asset

It is well noted that RPSNP needs to have an impact on beneficiary's status of home material acquisition and ultimately to own materials that would make their life easy has responded that RPSNP is making a real progress to their life through purchasing and holding of essential devices/materials such having the essential devices materials such as, bed, stove, table, chair mattress, blanket etc. The other assets of the respondents that were created by productive safety net programs were house equipment.

Table4. 26: Household House Equipment' Asset Before and After Joining RPSNP

House Equipment	Number of House Equipment's before RPSNP							Number of House Equipment's after RPSNP						
	1-3		4-6		>6		Mean	1-3		4-6		>6		Mean
	No	%	No	%	No	%		No	%	No	%	No	%	
Mobile	1	1	-	-	-	-	0.07	10	5	-	-	-	-	0.28
Radio	3	0.5	-	-	-	-	0.0049	3	1.5	-	-	-	-	0.18
Bed	7	1.5	-	-	-	-	0.0146	30	14.6	-	-	-	-	0.61
Table	14	3.4	-	-	-	-	0.0341	43	21	-	-	-	-	0.65
Chair	2	6.8	-	-	1	0.5	0.0829	49	23.9	2	1	-	-	0.81
Modern oven	6	1	-	-	-	-	0.0098	19	9.3	1	0.5	-	-	0.60
Blanket	7	2.9	-	-	-	-	0.0293	19	9.3	1	0.5	-	-	0.76
Mattress	9	3.4	-	-	-	-	0.0341	38	18.5	1	0.5	-	-	0.70
Solar	39	4.4	-	-	-	-	0.0439	23	11.2	1	0.5	-	-	0.63
Plate	39	19	4	2	-	-	0.2829	50	24.4	51	24.9	3	1.5	1.88

Source: own field survey, June, 2023

According to the survey results in table 4.26, before joining RPSNP. Household house equipment assets that owned production materials before joining productive safety net programs are: mobile (1.7%, mean = 0.07), radio (0.5%, mean = 0.0049), bed (1.5%, mean = 0.014), table (3.4%, mean = 0.0341), and chair (6.8%, mean = 0.0829). Modern oven (1%, mean = 0.0098), Blanket (2.9%, mean = 0.0293) Mattress (2.9%, mean = 0.0341), Solar (4.4%, mean = 0.0439), and Plate (19%, mean = 0.2829), respectively After joining the program, mobile phone (5%, mean = 0.28), radio (1.5%, mean = 0.18), bed (14.6%, mean = 0.014), table (21%, mean = 0.65), chair (23.9%, mean = 0.81), modern oven (9.3%, mean = 0.60), blanket (9.3%, mean = 0.76), mattress (18.5%, mean = 0.70), solar (11.2%, mean = 63), and plate (24.4%) Household equipment assets indicate that a productive safety net program is important to a household's house. Most households improve their assets. That is, the percent of households that have household equipment after RPSNP is higher than when compared with those who had it before RPSNP. This result same with (Zena, 2013).

According to the survey results productive safety net program helps to create additional house equipment materials. RPSNP doesn't provide money for beneficiaries in order to buy these assets; however, it emphasizes the program's role through its food aid in order to protect their assets from depletion. According to key interview informants, house furniture is one part of the safety net. They didn't have any furniture before joining RPSNP. Now that they do have a bed, they don't have any eating utensils. They took one from the neighborhood, but now they have what we call luxury, like coffee mugs. The FGD participants also demonstrate that RPSNP assisted women, who are the heads of households, in making purchases of basic cooking materials, which facilitated their lives. Productive safety net is playing a significant role in expanding households.

4.6.3.1 Paired- T test result House equipment before and After RPSNP

The mean difference between wealth after and before PNSP is very close to 0 (7.29e-09), which suggests that, on average, there is almost no difference between these two variables. The p-value for the null hypothesis ("Ho") is 0.5000, which is greater than the typical significance level of 0.05. Therefore, you fail to reject the null hypothesis, indicating that there is no statistically significant difference between the two groups. In summary, based on this paired T-test, there is no evidence to suggest that wealth have a significant mean difference. The paired sample T-test result evidenced that there are not significant variations between house equipment before and after participation in safety nets program at $P > |t| = 0.05$.

Table4. 27: paired T test result House equipment Before RPSNP and After RPSNP

Variables	Obs	Mean	Std. Err	Std. Dev.	P> t	95% Conf. Interval]	
House Equipment Before RPSNP	205	8.17E-09	0.067378	0.964711	0.5	0.13285	0.132847
House Equipment after RPSNP	205	9.89E-09	0.066302	9492956	0.5	0.13072	1307244

Source: own field survey, August, 2023

4.6.4 Wealth index

The mean difference between total wealth after and before PNSP is very close to 0 (7.29e-09), which suggests that, on average, there is almost no difference between these two variables. The p-value for the null hypothesis ("Ho") is 0.5000, which is greater than the typical significance level of 0.05. Therefore, fail to reject the null hypothesis, indicating that

there is no statistically significant difference between the two groups. In summary, based on this paired T-test, there is no evidence to suggest that wealth have a significant mean difference. The paired sample T-test result evidenced that there are not significant variations between wealth index before and after participation in safety nets program at $p > 0.05$.

Table4. 28: Paired t test result Wealth index before RPSNP and After RPSNP

Variables	Obs	Mean	Std. Err	Std. Dev.	P> t	95% Conf. Interval]	
Wealth index Before RPSNP	205	2.20e-09	.0684078	.9794508	0.5	-.134877	.134877
Wealth index after RPSNP	205	-5.09e-09	.0679637	.9730927	0.5	-.1340015	.1340014

Source: own field survey, August, 2023

4.6.5 RPSNP Beneficiaries House Type before and after joined and Benefited RPSNP

Asset is a single residential building unit, which may range from a rudimentary hut to a complex structure of wood, concrete, or other material. However, in tradition, agriculture-oriented societies' domestic animals, such as livestock or chickens, share a part of the house with humans.

Table4. 29: House Type Before and After Joined RPSNP

Item	Made materials	Before RPSNP		After RPSNP	
		Frequency	Percent	Frequency	Percent
Type of materials made house	Grass	145	70.7	60	29.3
	Corrugated Iron Sheet	60	29.8	144	70.2
	Total	205	100	205	100

Source: own field survey, June, 2023

Table 4.29 shows that the house type of respondent's household heads RPSNP beneficiaries before joining the program was (145) 70.7% grass house made from wood, grass, and mud, and (60) 29.3 % corrugated iron sheet house made of wood, tin. After joining and benefiting from RPSNP, the respondent's household heads were (60) 29.8% grass and (144) 70.2% corrugated iron sheet-made house. In general, this presented information shows that RPSNP beneficiaries changed their living house from grass to tin slightly.

4.7 Challenges of RPSNP Implementation

The government of Ethiopia and the donors tried to be involved in the success of the RPSNP program to attain its objectives. The program implementing body is structured under the agriculture sector at all levels. Similarly, in Goncha siso ense woreda, however, some factors affect the implementation of the program in the study area. The survey respondents were asked to indicate the challenges in the implementation of RPSNP contributing to a lack of community participation in the decision-making process of RPSNP.

This shown as follows in the table below: (40.14%) felt that the major challenges were a lack of active community participation, the imposing power of the attitude of the Keble manger food security task force, 13.38% poor quality of the planning process of the RPSNP task force, 14.79% low level of gender awareness, and 31.69% delay in payment.

Table4. 30: Major Challenges of RPSNP Implementation

Challenges	Frequency	Percent
low level of gender awareness	21	14.79
lack of active community participation	57	40.14
Poor quality of planning processes	19	13.38
delay in payment	45	31.69
Total	205	100

Source: Own Field Survey, July, 2023

Their low level of gender awareness contributed to the feeble implementation of the gender provisions of the RPSNP program implementation manual. Most of the experts at the Woreda and the DAs at the Kebele do not have gender training. The Woreda Women's Affairs Office is a member of the WFSTF and is expected to work for effective implementation of the gender provisions of the PIM and developing gender mainstreaming capacity. However, as it is found out through key informants.

The focus groups participants reflect that the major problem or challenge that faces implementation of the program is a delay in payment for works done under the public work program raised by implementers as well as arise. The WFSTF complains that the region doesn't timely transfer the funds to the woreda and cannot pay at the right time. Key informants in the study area indicated that the financial payment was delayed. Woredas is the

main problem in RPSNP implementation. Hampered by poor quality of planning processes because the planning process is not decentralized, which is done at the woreda level using the quota system. Besides, study results indicate that geographical location, administrative (selection mechanism used for eligible households), exclusion of poor with inclusion of rich, weak institutional linkages, and lack of active community participation in the decision-making process were the challenges for the program (Fekadu & Ignatius, 2009).

Some of the challenges of the program were targeting beneficiaries, the inability to distinguish between acute and chronic food insecurity at the grass-roots level, the application of a single wage rate at the national level, a lack of capacity to manage, an unprecedented amount of cash flowing into the district, and linkage problems at the grass-roots level (Devereux & Teshome, 2013). The challenges that face RPSNP implementation are inclusion and exclusion of beneficiaries, poor conservation and limited awareness of beneficiaries, linkage problems among officials, a lack of manpower in remote areas, and a lack of monitoring and evaluation of locally constructed infrastructures for their sustainability (Welteji *et al.*, 2017).

4.7.1 Households' RPSNP Payment times

RPSNP payment is one of the major incomes of sample households in the study area. However, the amount of payment, time of payment, and place of payment are the factors affecting the survival of the sample households. In terms of the RPSNP payment schedule, 66.3% of the respondents responded that there was no payment at the right time, while 33.7% of the respondents replied that there was payment at the right time. Some of respondents reflect does not pay on time because their residence is far from payment place and no access to information. This implies that households cannot get payment at the right time and could not fulfill their food gap and other requirements. As participants in the focus group discussion report, the lateness of the payment is the major problem that forced them to take out loans before the distribution of the transfer, which hinders them from being self-sufficient and accumulating assets.

66.8% of the respondents replied that the amount is too little, there is no fair payment, and they cannot support the consumption level of households with the ever-increasing food prices. However, the remaining 33.2% of the respondent's support that the RPSNP payment is fair and enough for life support. They pointed out that the payment schedule does not

account for the locals' grain marketing seasons. Since the payment periods pay little regard to the period of household food shortage a problem that should be addressed by those involved bodies it may be inferred that the payment periods are not driven by demand.

Table4. 31: Fairness and right times of RPSNP payments

Item	Response	Frequency	Percent
Do you think the payment of RPSNP is sufficient or fair?	Yes	137	66.8
	No	68	33.2
Do you usually receive The payment at the right time?	Yes	136	66.3
	No	69	33.7

Source: Own Field Survey, July, 2023

According to the woreda RPSNP office, RPSNP is a government-owned program co-financed by both donors and the Ethiopian government. Every registered individual in the family is entitled to 155 birrs monthly for years as direct support beneficiaries, while PW is part of the program Paid 155 birr per month for sex month with a year in cash. During participant group discussions, it was raised that the amount of cash transferred is too little and cannot support the consumption level of the households. Other concerns raised include the late payment, which in most cases is transferred after a year and, for that matter, is not paid in full in some cases.

It is also noted that the location at which payments are made woreda town in *Gindewin* is often too far from their kebeles. During focus group discussions, it was raised that the location at which payments are made in Werda town or cluster is often too far for some kebeles, and participants are made to stay up to two days waiting to be paid the transfer. Because they had to pay more for housing, food, and transportation in these situations, the impacted participants suggested that they be compensated where they work. Another issue brought up is that they are unable to buy food crops in bulk during periods of comparatively superior grain markets due to the scattered nature of the payments.

CHAPTER FIVE

SUMMARY, CONCLUSION, AND RECOMMENDATION

5.1 SUMMARY

The study was aimed at assessing the contribution of RPSNP to improving female-headed households' food security and asset building in Goncha Siso Ense Woreda. The major questions that the study attempted to answer in the course of this study were:

1. How the RPSNP is implemented in the study area?
2. What are the contributions of the RPSNP to households' food security status food access, availability, utilization and stability?
3. What are the contributions of the RPSNP to households' asset building?
4. What are the challenges of implementation of RPSNP towards the contributions of households' food security?

The researcher selected the study area purposefully, which has four kebele. In addition to this, stratified random sampling method was used to select sample households to be questioned. In the first stage, all Kebeles were stratified into three strata based on their agro-climatic zone: woyndega, kola, and dega. In the second stage, four Kebeles were selected randomly from the dega and kola agroecological zones. Woinadega agroecological zone is not under RPSNP Beneficiary households. Finally, the total number of households in four Kebeles, a total of 205 female-headed households was selected systematic randomly based on probability proportional to their size. Both primary and secondary data sources were used in this study. The data was analyzed through both quantitative and qualitative methods; both semi-structured questionnaires and semi-structured interviews were employed. 205 female-headed households were asked to fill out the questionnaire to analyze the collected data. . Descriptive analysis (tables, percentages, frequencies, mean , standard deviation and grap) were used .Statistical Package for Social Science (SPSS) version 25 was used and data triangulationmethod was used.Inferential statistics, a binary logistic regression model, and paired –T test was used. On the other hand, to obtain qualitative data, interview sessions were conducted with the concerned experts of RPSNP. Open-ended questions were analyzed using descriptive qualitative analysis, and focus group discussions were conducted. Therefore, the following is a major finding of the studies.

Concerning the implementation status of RPSNP, this study summarizes the following major findings: On the subject of reasons for being a RPSNP beneficiary, based on the findings of the study, the number of households participating in the program was determined by a combination factor, as households have a few livestock and small land holdings. To get benefits from either public work or direct support from the program. However, landless households had a better chance to participate in RPSNP compared to the other selection criteria. All RPSNP beneficiaries were only eligible to participate in the cash assistance program. The decision-makers were a collaboration of Kebele managers and the Kebele food security task force office. Concerning the beneficiary category in the program, 62% of the respondents were public workers, and (38%) were direct support.

On the contribution of RPSNP to household food security, this study summarized the following major findings. Productive safety net contributed to households' food security improvement in the lives of female-headed households' different fields of household's income generation activities. The majority (67.4%) of households were improving their current food security status after RPSNP intervention as compared to the status they had before RPSNP intervention. In the study area, the average food secure household was 52.7%, while the average food insecure household was 47.3%. During the period under study, this research finding revealed that 82.9% of respondents had food supply changes due to RPSNP intervention. While 17.1% of respondents did not change their food supply compared to before the RPSNP intervention. The study result showed that the RPSNP has significantly raised the consumption status of participating households in the study area. Moreover, the program increased participating households' eating status by 50.7%, which is 24.9% more than what they would have consumed in the absence of the program. The finding provided sufficient evidence of the program contribution to household food security. After becoming a program beneficiary, the program changed people's everyday consumption patterns, coping strategies.

Regarding the contribution of RPSNP to asset building, this study summarized the following major findings: In the area, after participating in the program, most households' housing conditions, the number of livestock and farm equipment's, and house equipment's improved compared to prior. In other words, RPSNP had brought improvements in the consumption patterns of the majority of the beneficiaries, and there had also been a general increase in

their livestock assets and improved living standards. In the study area prior to the inclusion of the sample households into RPSNP, almost all of them were suffering from food deficiency and were resource poor. After their inclusion in RPSNP, the sample households have used RPSNP transfers for many purposes, and as a consequence, they have exhibited undeniable improvement in their lives, particularly in terms of consumption, protection, and rebuilding of household assets.

Regarding challenging factors in the RPSNP program, in this study area, the major findings were that the main challenges of RPSNP implementation were quota-based beneficiary targeting, limited family involvement /absence full of family inclusion, lack of community participation in public work, delay of payment, and distance of payment from Kebele. In terms of the RPSNP payment schedule, 66.3% of the respondents responded that there was no payment at the right time, while 33.7% of the respondents replied that there was payment at the right time. This implies that households that cannot get payment at the right time and cannot fulfill their food gap and other requirements. The lateness of the payment is the major problem that forced them to take a loan before the distribution of the transfer, which hinders them from being self-sufficient and accumulating assets. 66.8% of the respondents replied that the amount is too little, there is no fair payment, and they cannot support the consumption level of households with the ever-increasing food prices. However, the remaining 33.2% of the respondents support that the RPSNP payment is fair and enough for life support.

5.2 Conclusion

The main issues that the households face are temporary and ongoing food insecurity in Ethiopia in general and in the research area in particular. A variety of actions, both immediate and long-term, are required to address this issue. Among the comprehensive initiatives designed to improve food self-sufficiency and asset accumulation, RPSNP has long been in force and has essentially expanded its intervention among chronically food insecure areas as well as households to rationalize this food insecurity and poverty. Productive safety net program had a major impact on asset accumulation and the immediate food crisis issues in the research area.

This is due to the fact that households in the study area use their RPSNP income primarily for asset accumulation and consumption. The study in particular showed the intervention of

the (RPSNP) allowed participants to keep their asset holdings. Because of the program assistance, the program participants now have more livestock. The study also demonstrated that the program had a statistically significant positive influence on household food security status. When all members of a household have access to a program that is of sufficient value, quantity, and timing, the household's food consumption status advances. Without fulfilling these prerequisites, it is challenging to confirm participants' food intake status in the study.

The study's findings show that the program continues to cause several issues during implementation. RPSNP helps households maintain consistent consumption while delaying payment. The rural productive safety net program in the study region specifically targeted households in the study area with tiny land holdings, low asset accumulation. This suggests that the financial status (food insecurity situation) of a given household in the research region used by the Keble food security taskforces to target marginalized and vulnerable households is influenced by landholding, livestock ownership, family size, and the kind of constructed housing. The likelihood that a program has an influence on a household's ability to feed its members and cannot be targeted in RPSNP increases with the level of the asset holdings of the household, such as livestock and farmland. In a similar vein, households with smaller land holdings and lower asset accumulation have a higher propensity to participate in RPSNP program that have a positive influence on food security. Because of this, the households are unable to graduate at the anticipated time.

In this study, the effect of the Productive Safety Net Program (RPSNP) on the food security of the beneficiary female-headed households has been explored. RPSNP was helping local development in two ways. RPSNP was contributing to the community's development in two ways. First, a specific percentage of the program funding was set aside for the development of regional infrastructure. Second, those who are physically capable provide labour to build these infrastructures. RPSNP was assisting households in meeting their consumption demands by supplying cash. Both the number of dining times and the quantity of food and meals served at each dining hour were expanded by the program. The program has also led to a rise in food expenditure and consumption levels. The RPSNP has improved the beneficiary households' food security status by maintaining the minimum level and regulating consumption.

Beneficiary households' involvement in public works projects like rangeland management in pastoral areas, soil and water conservation, and the construction of roads, water infrastructure, schools, and clinics improved livelihoods by increasing the availability of natural resources, boosting agricultural output and improving market access, bolstering disaster and risk management, and promoting climate resilience. The community's standard of living was being improved by all of these community-based infrastructures.

5.3 Recommendations

Based on the above findings of the study, the following recommendations are made:

- Woreda RPSNP office should select based on the severity of the food insecurity issue is preferable to giving quotas to every kebele in the woreda.
- All members of a household should be enrolled in the RPSNP if it is determined that the household is chronically food insecure and qualifies. Because the clients could not close the food gap as anticipated by the program objectives without full family participation.
- Female household head and children with high food insecure should be encourage and support by women and child affair office to improve their living standard in your kebele.
- To minimize delays in beneficiary transfers. When kebele task force communicate with the woreda experts and pay monthly payments in your kebele because, as previously mentioned, one of the challenges is the delay in monthly transfers and the distance of payment location.
- To ensure that the planned and carried out activities improve the food security status of the participant households, it is essential to raise awareness among society about the best use of resources for the community-level implementation of the food security program. Implementers at the local level should adhere to the RPSNP implementation manual and the graduation guideline note. This increases a household's potential to graduate, create a long-term business plan, and become food self-sufficient quickly.
- The RPSNP program allocation of quotas at various levels must take into account the actual state of food insecurity in the study area as well as the full family inclusion of households because the number of targeted households to be supported by the program was insufficient given the number of food insecure households already present there.

- The federal government and Werdas, among other stock holders, were unable to provide adequate attention in their capacity as owners. Therefore, it is advised that federal government and werda government assume responsibility for the programme in order for RPSNP recipients to succeed.
- The Productive Safety Net Program (RPSNP) should expand the opportunity of off-farm and non-farm activities through investments that generate employment and increase the wages to attract rural female headed households in order to diversify their income sources thereby reduce their vulnerability to food insecurity and asset depletion.
- Education status of the household heads is one of the main determinant factors that affect the household's vulnerability to food insecurity. But, the majority of the female headed households were illiterate. Therefore, the government should expand women's learning program, short term training and different capacity building programs for female headed households.
- PNSP transfer is also one of the factors that affect the household's vulnerability to food insecurity. The amount and type of the transfer would benefit households. However, the type of the transfer was not based on the household's interest. So that, it would be better if it was based on the household preference. Additionally, market assessment should be undertaken before giving any form of transfer. Moreover, need assessment at individual household level should be done before giving either cash or food transfer. Giving cash or food to the whole household will not satisfy each one's needs. Those who need cash should get cash and those who need food should get food.

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APPENDIX 1: QUESTIONNAIRE

HAWASSA UNIVERSITY

COLLEGE OF SOCIAL SCIENCES AND HUMANITIES

DEPARTMENT OF GEOGRAPHY AND ENVIRONMENTAL STUDIES

Dear respondents my name is Marge Fenta. I am a post graduate student at Hawassa University the Department of Geography and Environmental Studies. This questionnaire is prepared for assessing the contributions of productive Safety net program on improving female headed household's food security and asset building incase of Goncha Siso Ense Woreda East Gojjam Zone, Amhara Region. Your response will be a great value to the study. Thus, you are kindly requested to give your genuine answers. The responses will be treated confidentially.

Thank you in advance for your cooperation

To be responded by Female Headed Households

Date _____

Site/Kebele _____

Instruction: Mark for your appropriate choice or give your appropriate answer on the provided space

Part One: Demographic Characteristics of Respondents

- 1, Age of household head _____
- 2, marital status: A. Married B. Single C. Divorced D. Widowed
3. Household size-----
4. What is your level of education? A. Cannot read and write B. Read and write C, Primary (1-4) D. Lower secondary (5-8) E. Secondary (9-12) F, if other Specify _____

Part Two: Socio-economic Characteristics of Female headed households

5. Do you have land for farming? A. Yes B. No
6. If yes, type of ownership A. Privately owned B. Rented C. Through share cropping D. Inherited from the parents E. Allocated by the Kebele F, if other Specify _____
7. How many hectares Do you have Specify? _____
8. How many quintals of grains do you harvest from your farmland per year per hectare? -----
9. How much is your monthly income-----?
10. Do you have enough family labour? A. Yes B. No
11. Do you use agricultural inputs for your farmland? A. Yes B. No
12. If your answer is ``no ", what is the reason? A. Lack of money B. Lack of awareness C. Fear of side effects D. If there are others, specify _____
13. What activities do you perform...? A. Farming B. Livestock production C. Both farming and livestock D. Others (specify) -----
14. Is farming your main source of income? A. Yes B. No
15. If yes, it is sufficient to meet all yours and your family food needs? A. Yes B. No
16. If no, what other sources do you meet the demand? Specify-----
17. Do the crops that you harvested cover your families' yearly food consumption?

1. Yes

2. No

Animal related Questions

18. Do you have livestock? A. yes B. No

19. If yes, how many of the following animals do you have?

No	Types of animals	ownership		If yes Number of animals
		No	yes	
1	Cow			
2	Ox			
3	Sheep			
4	Goat			
5	Horse			
6	Mule			
7	Donkey			
8	Woyfen			
9	Hen			
10	Bee			
11	Heifer			
12	others			

Part three: Institutional Characteristics of Female headed households

Extension Service

- Did you get special services during the 2014/15 season? A. Yes B. No
- If your answer is yes, who provided the service? A. Development agent B. Health extension officers C. District agriculturist D. Non-Governmental Organization F. If others, please specify _____
- Did you consult an agronomist last season? A. Yes B. No
- If yes, how did they help you? A. Practical help on the farm B. Demonstration C. By giving different training D. If any other (please specify _____)

Access to credit

- Have you used the credit services of regular rural savings and credit institutions in your Keble / district? A. Yes B. No
- Question number 1 is yes, who did you get loan services from? Describe _____
- What is the purpose of what was found? A. Livestock production and / or fattening B. Household consumption C, Fertilizer and best seeds to buy other inputs D. Property construction F. Describe other _____

Market access

- Can you find it easily in your local market? A. Yes B. No
- If your answer is yes, how far is your house from the nearest market? _____ K. M

Access to the Agricultural Input

- Do use Agricultural inputs for food production? A. Yes B. No
- If yes, what resources did you use? A. Fertilizer B. selected seed C. Modern farming equipment D, if there is another, please explain _____

Irrigation

12. Do you use Irrigation services? A. Yes B. No
13. If your answer is "yes", what kind of crops did you grow? A. Field crops B. Fruits and vegetables C. Other -----

Agricultural Shchoke

14. Are you experiencing a weather event? A. Yes B. No
15. If your answer is "yes". What Have you experienced a severe weather event?
A. Drought B. Flood C. Frost D. Pest infestation E. Snow F. Unseasonal rainfall G.
Other -----

Social capital factors

16. Do you participate in social interactions in the community? A. Yes B. No
- If the answer says "yes". Yours Participation Where is it?
A. Iqub B. Eddir C. Drink coffee D. Wenfel and Debo E. At the wedding
F. Let's get involved -----

Part Four: Implementation of RPSNP

1. Which kind of productive safety net program do you participate?
A. Direct use B. Public work C. If any other, specify : _____
2. Your answer is public work If so, in which public works do you participate in
A. By expanding irrigation systems (river drains, springs, ponds, small construction B.
Infrastructure development Expand (paths, clean Drinking Water, education Houses, various
Institution building etc. Maintain Forestry, soil and Water Protection, etc. D. environment,
soil Fertility to improve And To improve productivity E. If Others List: _____
3. In your Kebele is selecting criteria of beneficiary households based on the program
implementation manual? A. Yes B. No
4. If your answer to question 3. Is "No" What are the criteria of selecting RPSNP beneficiary
in your locality? -----
5. What factors make you to be targeted in the RPSNP? A. Landlessness B. No or few
livestock C. Few lands D. poorest. E, Other specify-----
6. Which payment does your family get? A. Food B. Cash: C. Both
7. Where do you receive your RPSNP payments? A. In the Kebele center B. In the woreda
center C. If any, Others specify : ----
8. All your family Members in the safety program are they included? A. Yes B. No
9. For question Number 8 If your answer is "No" the reason what do you think? Please
explain -----
10. How much cash do you receive from the Safety Net program each month (per person)? --
11. How long does it take to participate in the Safety Net program? -----

Part five: Contributions of RPSNP on Food security

1. How many times your families eat before joining the Program per a day?
A. Once a day B. Two times a day C. Three times a day D. As obtained
2. How many times your families eat after joining the program per a day?
A. Once a day B. Two times a day C. Three times a day D. As obtained
3. How do you rate the food self-sufficient status of those households?

A. Highly improved B. Fairly improved C. Not improved D. Worsened
than before

4. From productive Safety net program What kind of service do you get?

- A. finance Support B. Community wide Works participated
C. which gives Financial Payment and advice Service D. other If Specify:

5. From the RPSNP program what you get Monthly Money why? As much as for a while
Food Consumption Service will it happen

A. For 1 week B. For 2 weeks C. For 3 weeks D. For 4 weeks F . If others , please
specify_____

6. After productive Safety net program Body If they are that Food Supply Change, 1 Yes
2 No. 3 . If you're other -----

7. If your answer is yes, then what happened to you?

- A. In productive Safety net program B .in agriculture Product Improvements
C, another If you have -----

.8 Do you think that the Safety Net program has contributed to addressing food insecurity in
your

Keble? A. Yes B. No

9. If “Yes, please indicate the contribution-----

10. Have you experienced food shortages after the Safety Net Program? A. Yes B.
No

11. as your income increase since joining the productive Safety Net Program? A. Yes
B. No

12. If the answer is yes, and your income increases, what is the reason? -----

- A. Increase family member participation B. Participating productive safety net program
C. The family number has decreased D. If any other , specify : _____

13. Do you think your life will improve every year after participating in the food and
program?

A. Yes B. No

10. By participating in the productive safety net program if you start what to buy Your
Ability Did you add? A. Food consumption B. Agricultural tools C. House Equipment D, if
any other, specify: _____

11. Do you to play the productive safety net program in your life? A. Yes B. No

Part six: Assess Food security status of households Measurement Tool

Following is your response Table Face Mark the front with an “X “.

1. Household Food Insecurity Access Scale (HFIAS)

No	Question	Response
1	In the past four weeks, did you worry that your household would not have enough food?	Yes
		No
1.1	If your answer to Q.1 Yes; How often did this happen?	1, Rarely (once or twice in the past four weeks)
		2. Sometimes (three to ten times in the past four weeks)
		3. Often (more than ten times in the past four weeks)
2	In the past four weeks, were you or any household member not able to eat the kinds of foods you preferred because of a lack of resources?	Yes
		No
2.1	If your answer to Q.2 Yes; How often did this happen?	1. , Rarely (once or twice in the past four weeks)
		2. some Time (in the past four week in from three to ten times)
		3.Often (more than ten times in the past four weeks)
3	In the past four weeks, did you or any household member have to eat a limited variety of foods due to a lack of resources?	Yes
		No
3.1	If your answer to Q.3 Yes; How often did this happen?	1, Rarely (once or twice in the past four weeks)
		2. some Time (in the past four week in from three to ten times)
		3.Often (more than ten times in the past four weeks)
4	In the past four weeks, did you or any household member have to eat some foods that you really did not want to eat because of a lack of resources to obtain other types of food?	Yes
		No
4.1	If your answer to Q.4 Yes; How often did this happen?	1, Rarely (once or twice in the past four weeks)
		2. some Time (in the past Four weeks in from three to ten time)
		3.Often (more than ten times in the past four weeks)
5	In the past four weeks, did you or any household member have to eat a smaller meal than you felt you needed because there was not enough food?	Yes
		No
5.1	If your answer to Q.5 Yes; How often did this happen?	1, Rarely (once or twice in the past four weeks)
		2. Some Time (in the past four week in from three to ten time)
		3. Often (more than ten times in the past four weeks)
6	In the past four weeks, did you or any other household member have to eat fewer meals in a day because there was not enough food?	Yes
		No

6.1	If your answer to Q.6 Yes; How often did this happen?	1, Rarely (once or twice in the past four weeks)
		2. Some Time (in the past four week in from three to ten time)
		3. Often (more than ten times in the past four weeks)
7	In the past four weeks, was there ever no food to eat of any kind in your household because of lack of resources to get food?	Yes
		No
7.1	If your answer to Q.7 Yes; How often did this happen	1, Rarely (once or twice in the past four weeks)
		2. Some Time (in the past four week in from three to ten time)
		3. Often (more than ten times in the past four weeks)
8	In the past four weeks, did you or any household member go to sleep at night hungry because there was not enough food?	yes
		no
8.1	If your answer to Q.8 Yes; How often did this happen	1, Rarely (once or twice in the past four weeks)
		2 .Sometimes (three to ten times in the past four weeks)
		3. Often (more than ten times in the past four weeks)
9	In the past four weeks, did you or any household member go a whole day and night without eating anything because there was not enough food?	yes
		no
9.1	If your answer to Q.8 Yes; How often did this happen	1, Rarely (once or twice in the past four weeks)
		2 .Sometimes (three to ten times in the past four weeks)
		3. most of the time (more than ten times in the past four weeks)

2. Food Consumption Score (FCS)

No	Food group	Examples of food items	How many days eat within a week						
			1	2	3	4	5	6	7
1	Cereals	Maize, rice, wheat, sorghum, millet or any other foods made from grains (e.g., bread, injera, Genfo, Nifiro, kolo)							
2	Root and Tubers	potatoes, other foods made from roots and tubers sweet							
3	Vegetables	Tomato, onion, Garlic including wild vegetables, Cabbages							
4	Any fruits	Mango, Avocado, Papaya, banana and others							
5	Flesh Meats	Any beef, pork, lamb, goat, chicken, or other birds, liver, kidney, heart, or other organ meats?							
6	Any eggs	Hens' eggs							
7	Fish	Any fresh or dried fish							
8	Any food from Pulses	beans, peas, lentils, nuts, seeds or foods made from these							
9	Dairy products	Milk, cheese, yogurt or other milk products							
10	Oils and Fats	Any foods made with oil, fat, or butter?							
11	Sweets	Sugar, honey, sweetened soda or sugary foods such as chocolates, candies, cookies and cakes							
12	Other Condiment & Beverages	Tella, guce katicalal, etc.							

3. Coping Strategies Index

In the past 7 days, was there a time your households use the following coping method as a response to food shortage	Yes	No	If yes, how often(number of days each is used						
			1	2	3	4	5	6	7
Rely on less preferred and less expensive foods?									
Borrow food, or rely on help from a friend or relative?									
Purchase food on credit?									
Gather wild food, hunt, or harvest immature crops?									
Consume seed stock held for next season?									
Send household members to eat elsewhere?									
Send household members to beg?									
Limit portion size at mealtimes									
Restrict consumption by adults in order for small children to eat?									
Feed working members of HH at the expense of non-working members?									
Reduce number of meals eaten in a day?									
Skip entire days without eating?									

Part Seven: Contributions of RPSNP on asset Building

1. Do you see significant changes in your asset after joining the program? A. Yes B. No

2. If your answer to question 1 is "yes", what types of properties did you consider?

A. Animal husbandry B. Furniture C. Farm Equipment D. Others are specified -----

3. Type of Assets before and After the Family's Use of the RPSNP?

Asset type	Yes	No	Numbers of animals before becoming a RPSNP beneficiary	Numbers of animals after becoming a RPSNP beneficiary
A. Animal type				
Ox				
Cow				
Sheep				
Goat				
Calf				
Heifer				
Horse				
Mule				
Donkey				
If any other, Specify				
B. Farming Equipment's				
plough				
Shovel				
Saw				
Yoke				
Excavator				
Hammer				
Mopher				
If any other, specify				
C. Furniture				
phone (mobile)				
Radio				
Bed				
Redemption				
Chair				
Modern stove				
blanket				
mattress				
Solar				
Plates				
If other (specify)				

Appendix 2: Focusing Group Discussion

Guiding questions for Focusing Group Discussion

Name of Keble : _____

1. What looks like the selecting process of the RPSNP beneficiaries in your Keble?
 2. What methods have you used to identify family members public work and direct support?
 3. What are the main causes of food insecurity in your Keble?
 4. Were there challenges while identifying food insecure households for RPSNP initiative?
 5. How do you explain the living standard of the beneficiary households in your kebele?
 6. How do you observe the contributions of RPSNP on household's food security?
 - In terms of consumption
 - Asset accumulation
 - wealth generation.
 - Interims of property protection
 - Cattle protection, financial (credit) service,
 - Product materials
 - In terms of infrastructure: - Transport, water and extension services
 7. How do understand the concept of RRPSNP and the Programme Implementation Manual?
 8. What are the major challenges RRPSNP in the Woreda/Kebele?
 9. In general, describe the strength and weakness of the program?
- What additional comments would you suggest for the better performance of RPSNP in your kebele?

Do you have any other comments on our discussion ?

Thank you!

Appendix 3: Key Informant Interview Guideline

Key Informant Interview Guideline

Name of Keble : _____

A .Keble Administration

1. When did the productive safety net program start in the Kebele?
2. What looks like the selecting process of the RPSNP beneficiaries in your kebele?
3. How is RPSNP implemented in your Kebele?
4. The contribution of the productive safety net program to society
 - By consumption level (food security) Animal protection, household and beauty products, Job opportunity, Financial (credit) service, Environmental protection, Another success.etc..
5. The beneficiary families of the productive safety net program, how Are you singled out?
6. To achieve the goal of the productive safety net program, the local government administration do you have an opinion Another question?

Thank you for the interview!

B .Woreda RPSNP Officials (RPSNP task force members

1. When did the productive safety net program start in this woreda?"

2. How is the beneficiary families of the productive safety net program identified?
 3. What kind of methods are used to identify families that benefit from direct support and public work?
 4. Productive Safety Net Reason What Results Are you registered in woreda?
 - Consumption level (food security), Asset accumulation, infrastructural Developments (road, water, etc.), job Opportunity, Animal protection, household production Materials, Financial (credit service) and Environment Protection Othe.r
 - 5 .how do you see in Food Security in productive safety net program Programmable Before that Existing situation (food security situation, savings plan etc.) ,
 - 6 . How do you evaluate the change brought about by the food security for the productive safety net user families in this area ? (Effectiveness, rules, challenges)
 7. What are the challenges in implementation process of PSP?
 - 8 .The strength and weakness of the program?
- Do you have an opinion and other question?
- Thank you for the interview!

C. Key Informant Interview Guideline for Development Agents (DAs)

keble Name : _____

1. The role of agricultural professionals in increasing social development
 - 2 .What does the productive safety net program process look like?
 3. There were challenges in the targeting process (i.e., there were complaints about targeting). Process) if any, what steps have been taken to resolve it. What are the benefits of family food and activities?
 4. How do you evaluate the received product and productivity?
 - 5 . What are the main problems that you think are challenging when it comes to food security?
 - 6 . How would you describe the food security and status of female-headed households , in terms of foo supply, access and consumption and asset accumulation ?
 7. What is the role of women in agricultural production?
 8. do they get enough extension services and training in women farmers both governmental and non-governmental?
 - 9 . What are the changes / improvements? Family food security situation (family diet and consumption) and asset accumulations?
 - 10 . Describe any social, economic, and environmental issues that are present in the adoption related to this?
 11. What kind of interventions should be used for better implementation in the future? Regarding food security , female-headed households
 12. What looks like Targeting process of beneficiary households to RPSNP?
 - ☐ In the process of targeting what is your role as DA
 - ☐ Were their challenges in targeting process (i.e. Were complaints in targeting? Process) if there, what action has been taken to resolve.
- Do you have any other comments on our interview?

D. Women, Children and youth affair directorate

- 1 . What does your office look like in the woreda household food security program?
2. How many capacity building training / positions do you provide for women related to food and communication? Leaders? If yes, who will be involved and how?
3. What kind of role do they play in women-headed families to improve their food security?
4. Have you had any successes or good experiences so far?
5. What problems do you see in the current level of food security in the woreda?
6. Please mention all the problems associated with female-headed households.

Food Security?

7. What kind of interventions should be used for better implementation in the future to increase the level? Women -led families ?

8.What results The productive safety net program are we bringing regarding the economic construction of women .

- Regarding deciding on family financial issues
- To improve women's participation in social and economic issues
- Saving and raising awareness of users
- Starting a new business (business activities)
- In terms of infrastructure: - Transport, water and extension services
- Compared to environmental protection

Do you have any other comments on our discussion ?

Thank you for the interview!

Appendix 4: Figures in Data Collection



Photo: Focus group discussion with beneficiary FHH households in Enget kebele



Photo: Focus group discussion with beneficiary FHH households in Derit kebel



Photo: interview with woreda RPSNP and Food security office



Photo: A researcher interviewing Development Agents



Appendix 5: Responses to Household food insecurity access scale

No	Generic question	No		Yes							
				Rarely		Sometimes		Often		Total	
		N	%	N	%	N	%	N	%	N	%
1	Worried about food	33	16.1	37	18	95	46.3	40	19.5	172	83.9
2	Unable to eat preferred Food	48	22.4	46	22.4	68	33.2	43	21	157	76.6
3	Eat just limited kinds of Foods	63	30.7	44	21.5	62	30.2	36	17.6	142	69.3
4	Eat foods they really do not want to eat	91	44.4	37	18	42	20.5	35	17.1	114	55.6
5	Eat a smaller meal	110	53.7	40	19.5	37	18	18	8.8	95	46.3
6	Eat fewer meals in a Day	133	64.9	22	10.7	33	16.1	17	8.3	72	35.1
7	No food of any kind in the household	160	78	14	6.8	22	10.7	9	4.4	45	22
8	Go to sleep hungry	169	82.4	11	5.4	15	7.3	10	4.9	36	17.6
9	Go a whole day and night without eating	176	85.9	12	5.9	8	3.9	9	4.4	29	14.1

Appendix 6: Nutrition based severity weight for food groups.

Food groups	Severity Weight	Food groups	Weight
Cereals	2	Fish	4
Tubers	2	Pluses	1
Vegetables	1	Dietary products	4
Any fruits	1	Fats and oils	0.5
Flesh	4	Sweets	0.5
Egg	4	Beverages condiments (other)	0.5

Source: Adapted from WFP (2008)

Appendix7: Responses to food consumption score (FCS) Questions.

Food types			no consumption	Consumption period			Total
				1-2 days	3-4 day	5-7 days	
1	Cereals	Number	2	4	21	178	203
		Percent	1	2	10.2	86	99
2	Tubers	Number	162	15	14	14	43
		Percent	79	7.3	6.8	6.8	21
3	Vegetables	Number	74	15	82	34	131
		Percent	36.1	7.3	40	16.5	63.9
4	Any fruits	Number	167	9	21	8	38
		Percent	81.5	4.4	10.3	4	18.5
5	Flesh	Number	103	40	53	9	102
		Percent	50.2	19.5	25.9	4.4	49.8
6	Egg	Number	101	55	45	4	104
		Percent	49.3	26.8	21.9	2	50.7
7	Fish	Number	205	0	0	0	0
		Percent	100	0	0	0	0
8	Pluses	Number	50	12	95	48	155
		Percent	24.4	5.9	46.3	23.5	75.6
9	Dietary products	Number	170	12	18	5	35
		Percent	82.89	5.9	8.8	2.5	17.1
10	Fats and oils	Number	69	0	0	45	136
		Percent	33.7	12.7	31.7	22	66.3
11	Sweets	Number	154	21	19	11	51
		Percept	75.2	10.2	9.3	5.4	24.9
12	Condiments and other Beverages	Number	24	18	34	129	181
		Percept	11.7	8.8	16.6	62.9	88.3

Source: Own field survey 2023

Appendix 8: Consumption coping strategies and associated severity weight for rCSI.

reducing Coping strategy index(behavior)	Severity weight
Eating less-preferred foods	1.0
Borrowing food/money from friends and relatives	2.0
Limiting portions at mealtime	1.0
Limiting adult intake	3.0
Reducing the number of meals per day	1.0

Adapted from WFP (2008)

Appendix 9; Response of Reducing Coping Strategy Index (Rcsi)

Items	Yes		No		Total		Number of day CSI													
	N	%	N	%	N	%	1day		2day		3day		4day		5day		6day		7day	
Rely on less preferred foods?	120	58.5	85	41.5	205	100	2	1	35	17.1	47	22.9	29	14.1	7	3.4	-	-	-	-
Borrow food a friend or relative?	124	60.5	81	39.5	205	100	14	6.8	63	30.7	31	15.1	5	2.4	11	5.4	-	-	-	-
Send household members to eatelsewhere	36	17.1	169	82.4	205	100	11	5.4	17	8.3	7	3.4	1	0.5	-	-	-	-	-	-
Limit portion sizeat mealtimes	45	22	160	78	205	100	12	5.9	15	7.3	6	2.9	7	3.4	3	1.5	2	1	-	-
Reduce number of meals eaten in a day?	46	22.4	159	77.6	-	-	18	8.8	17	8.3	2	1	5	2.4	4	2	-	-	46	22.4

Appendix 10: Livestock Asset Wilcoxon signed-rank test

Sign	Obs	sum ranks	Expected
Positive	104	10840	10557.5
Negative	101	10275	10557.5
Zero	0	0	0
All	205	21115	21115

Prob > |z| = 0.7395

Appendix 11: Farm equipment Wilcoxon signed-rank test

Sign	Obs	sum ranks	Expected
Positive	104	11871	10557.5
Negative	101	9244	10557.5
Zero	0	0	0
All	205	21115	21115

Prob > |z| = 0.1222

Appendix 12: Housing equipment Wilcoxon signed-rank test

Sign	Obs	sum ranks	expected
Positive	79	9669	10557.5
Negative	126	11446	10557.5
Zero	0	0	0
All	205	21115	21115

Prob > |z| = 0.2927

Appendix 13; Wealth index Wilcoxon signed-rank test

Sign	Obs	sum ranks	expected
Positive	91	10348	10557.5
Negative	114	10767	10557.5
Zero	0	0	0
All	205	21115	21115

Appendix 14: Conversion factor used to compute tropical livestock unit(TLU)

Animal category	TLU	Animal category	TLU
Calf	0.50	Donkey (young)	0.35
Weaned calf	0.34	Sheep and goat (adult)	0.13
Heifer	0.75	Sheep and goat(young)	0.06
Cow and ox	1	Chicken	0.013
Donkey(adult)	0.70	Horse	1.1

Source: Storck, et al. (1991) Yibrah (2010)