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INTRODUCTION

Food is one of the basic necessities for all living things in this globe to grow, maintain life and develop. It is a source of energy for almost all bodily functions and it directly affects our health status and how we feel each day and the future. It is an integral part of everyone's' lives. Human body requires the five varieties of nutrients to be active and healthy, to work, think, play and learn. These nutrients (**Protein :** for building, maintaining and repairing blood, muscle, bones and skin, **Vitamins and Minerals :** sometimes called micronutrients are important in controlling various processes and functions in the body and to build bones and tissues like calcium and iron, **Carbohydrates :** stand as main sources of energy, **Fat :** provide as a secondary energy next to carbohydrates and in fact prove a more higher energy than any other nutrients though they are difficult to burn) need to be consumed in the correct quantity to stay healthy (Concern, 2015). In addition to this, some developments have been made to put water as sixth variety of food which is essential for an active and healthy life.

A balanced diet which can provide appropriate nutrients to body is important for an active heart, healthy brain and for finest working muscles. In general, balanced diet is a basis for a well-functioning body in preventing various diseases and maintaining a balanced weight and quality of life. There are currently over 800 million people who are not in a condition to fulfill a balanced diet despite the fact that our world is producing a food which is enough for everyone (FAO, 2015). The World Food Programme defined food security as a

"A situation that exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life. Based on this definition, four food security dimensions can be identified: food availability, economic and physical access to food, food utilization and stability over time."

When initially the issue of food security was first highlighted, special consideration was made to the global echelon through aggregate food supply at national or regional level. The initial macro level definition of food security is avowed as " *The Availability at all times of adequate world food supplies of basic food stuffs to sustain a steady expansion of food consumption and to off-set fluctuations in production prices*" (Debebe H., 2000). This definition of food security laid a colossal emphasis on the aggregate supply side of food at the global market level regardless of the micro side of households or individual level. However, the subject matter whether regional or national level could dominion enough food to meet the amassed food requirements of its people. Food security was visualized as a macro level phenomenon with international and national food reserve adequacy. Afterwards, hunger and starvation on one corner of the globe and food availability at the other revealed that food availability at the international or national level will not necessarily guarantee food acquisition at the micro level of households or individuals. This clearly led to the shift in thinking in recent times from the crude global or national level food availability to the household or individual food security. Based on the above definition of food security, different researchers, academicians and eminent scholars presented quite a number of diverse definitions and concepts of food security.

Moreover, the more widely accepted definition of food security was offered by the World Bank in 1986 which states food security as "*access by all people at all times to enough food for an*

active and healthy life". The definition clearly emphasizes on the supply of food adequacy with time prolonged existence, nutritional quality, individual level ability to command food and the supply coverage for the entire population. The definition comprises different issues and aspects of food security. In the preliminary phase, dealing with the production relating to the food availability, to distribution stability of the produce with the accessibility by all and finally to the consumption phase where assessing individual food requirements are met in order for the individual's active and healthy life. In concomitant to this, the sustainability in the availability and accessibility of food to meet the individual needs is precisely incorporated. In concomitant to this, Barrett, C. B., Reardon, T., Webb, P., (2001), conceptualized food security as a concept that traverse the conceptual wall between development activity and emergency relief. The failure risk in either of the realm of activity determines the vulnerability to a corrosion food security and decent slimy slide towards famine. In general, it can be comprehended that food availability at the global level does not necessarily ensure food availability in a given particular country as what is available in the global market may not be accessible by food insecure people especially in developing economies.

The term food security has different facets accordingly to the level of focus from global, regional, national, community, and household to individual. Food and Agricultural Organization (FAO) (1996) defined food security as "*food is available at all times, when all people have means of access to it, it is nutritionally adequate in terms of quantity, quality and variety, and which is acceptable within the given culture. Only when all these conditions are in place population can be considered food secure*". Maxwell D. and Wiebe K. (1998) described food security as the state of having secure and sustainable access to sufficient food for an active and healthy life. Currently, a

synthesis of these definitions with the main emphasis on availability, access and utilization, serves as the working definition for various projects of international organizations.

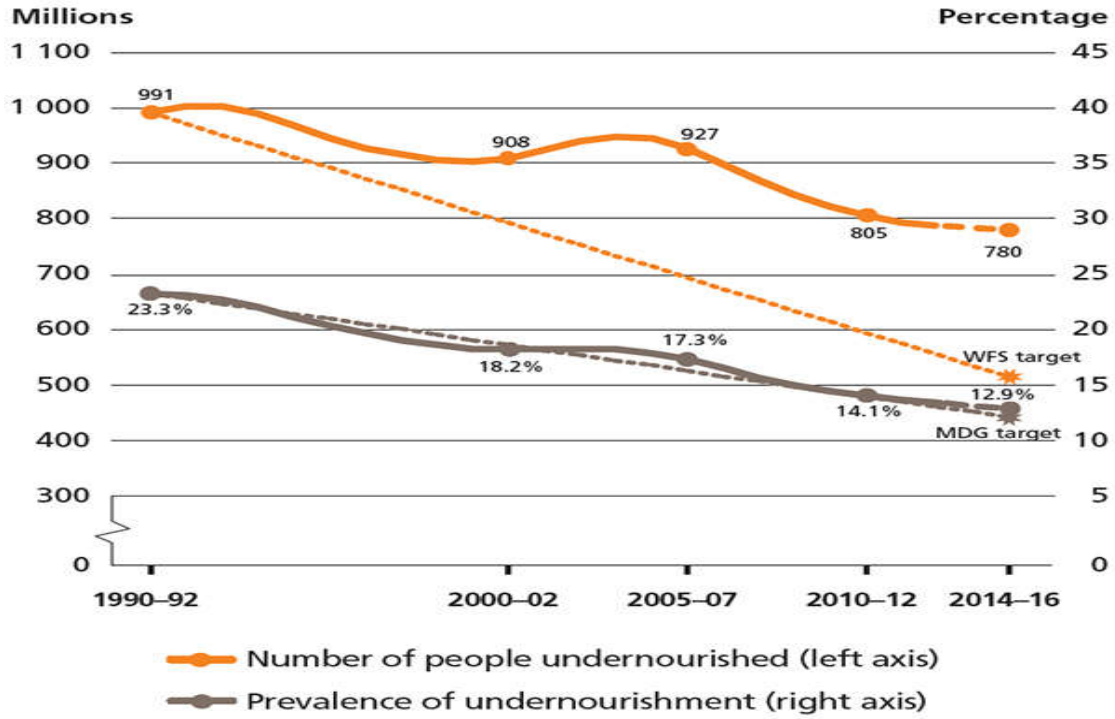
Global Scenario

Globally, there are about 861 million food insecure people, while 74% of the food insecure live in the rural areas of developing countries. Currently there are large number of people who are affected by hunger in developing nations and the number of hungry people is still growing by a rate of four million per year and the trend is not falling as quickly as predicted to achieve the goal predominantly in Africa and Southern Asia. In addition to this, rate of increase in undernourishment in Africa immensely exceeds that of other regions, about 38% of the population is found to be undernourished (FAO, 2015). Despite the available resources, measures and efforts made by governments and international organizations in Sub Sahara Africa, food security still remains as one of the most crucial challenges faced. Sub-Saharan Africa (SSA) is the world's most vulnerable region regarding food insecurity for the last four decades (USAID, 2014). In this world, humans are the only animals who pay to live. Nearly 3 billion people or around half of world's population live in less $2.50 where 1.3 billion get less than $1.25 living in extreme poverty (FAO, 2016). The pervasiveness of poverty is the greatest challenge of most Sub-Saharan African region where majority of the population live in the rural areas with smallholder farmers being the most vulnerable groups. About 70% of Africa's deprived people live in the rural areas and mainly depend on agriculture as a means of food and livelihood.

In the year 2000, world leaders dedicated themselves to the Millennium Development Goals (MDGs) where one aim of the Millennium Development Goals was to eradicate hunger and poverty stating "to reduce by half the proportion of people who suffer from hunger". It was also

predicted that several countries will not accomplish the MDG targets especially in Sub-Saharan Africa, where one third of the total population is food insecure and yet a total of 72 countries out of 129 which is more than half the countries monitored by FAO have achieved MDG 1c hunger target (1c: The prevalence of Undernourishment and proportion of underweight children under the age of 5 years). In some regions like South-eastern Asia, Western Africa and South America, undernourishment declined tremendously in a faster rate for child underweight. Most parts of the mentioned regions enjoyed a stable economic growth and political situations usually accompanied by well-designed social protection policies and strategies targeted particularly for the poor segments of the population (FAO, 2016). It has also been marked that political instability, natural disasters and human induced disasters stood as major impediments for majority countries who have failed to reach the hunger targets.

Figure 1.1 Undernourishment in developing regions: Actual and projected progress of MDG & WFS

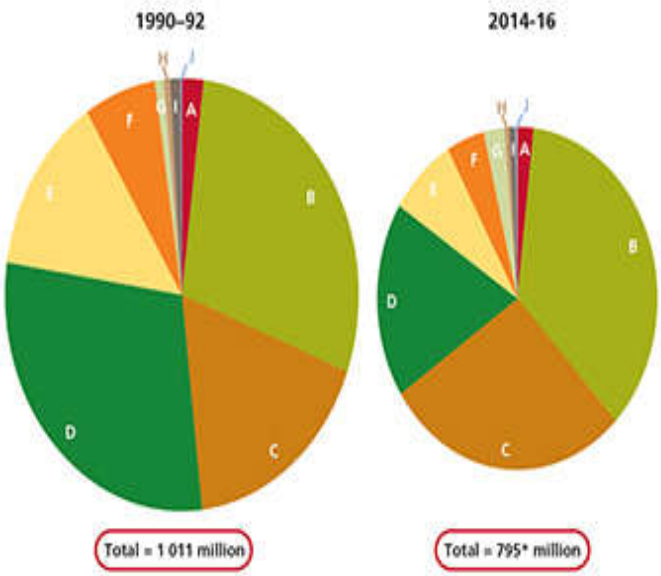


Source: FAO, 2016

The occurrences of poverty and food insecurity are predominantly devastating in developing nations and lots of diverse resources are being allocated to different programs which are aimed at eradicating poverty and food insecurity by range of governmental and nongovernmental organizations. The 1996 World Food Summit comprised of 185 heads of countries reaffirmed "The Rome Declaration on World Food Security":

> *"We the Heads of State and Government reaffirm the rights of everyone to have access to safe and nutritious food, consistent with the right to adequate food and the fundamental right of everyone to be free from hunger"* (John B., 2014).

Figure 1.2 World hunger in the years between 1990-92 and 2014-16



	Number (millions)		Regional share (%)	
	1990–92	2014–16	1990–92	2014–16
A Developed regions	20	15	2.0	1.8
B Southern Asia	291	281	28.8	35.4
C Sub-Saharan Africa	176	220	17.4	27.7
D Eastern Asia	295	145	29.2	18.3
E South-Eastern Asia	138	61	13.6	7.6
F Latin America and the Caribbean	66	34	6.5	4.3
G Western Asia	8	19	0.8	2.4
H Northern Africa	6	4	0.6	0.5
I Caucasus and Central Asia	10	6	0.9	0.7
J Oceania	1	1	0.1	0.2
Total	1 011	795*	100	100

Source: FAO, 2016

With this in mind, concerning food security it should be noted that, the first requirement for development is adequate nutrition where without an appropriate nutrition children and adults will be underdeveloped physically, mentally and socially and in worst case scenarios lives will fall

short of their actual potential. In line with this, food security condition is affected by different factors such as food production, poverty, natural hazards, access to markets, political stability, health status etc. The considerable food price rise and financial crises and the already felt climate change effects have highlighted food security and livelihoods vulnerability and fragility. Over the recent couple of decades, the major concerns of most developing countries especially Sub Saharan African countries emphasizes on achieving better food security status and wellbeing of the rural poor.

Food security scenario in Ethiopia

Ethiopia is one of the highly food insecure countries in the world, and its name has been illustrious for famine and drought for decades. Large number of its population live at subsistence level and extensively dependent on farm production, which paved a way to a highly exposed and vulnerability to severe draughts and climatic shocks. The smallholder peasant sector is the most important agricultural sub sector in the country mainly emphasizing on food grain crops where considerable improvements of cultivation practices, management and marketing need to be realized. The production volume of food grain crops as well as the per capita food production has shown tremendous fluctuations throughout the 1980s resulting in severe food shortage in the country. The main reasons for these were stochastic shocks such as recurrent draught, lack of incentives for the small-scale food producers and poor extension services for the small peasant households (Kifle L. and Yosef G.,1999).

Ethiopia is tantamount with the issues of poverty and hunger in the global parlance, with relentlessly low incomes, droughts and foremost famines that have been recurring every decade since the 1970s' and have engrained this kind of impression in psyche of the globe. In the 1990s,

an estimated of 30 million Ethiopian citizens were food insecure, and food crises were highly persistent. Among this food insecure people, the majority live in the rural areas of the country. About 52% of the rural population and 36% of the urban population consume under the minimum recommended daily intake of 2,100 Kcal per person per day (FAO, 2011). The incidence of hunger in Ethiopian households due to insufficient resources to obtain food has been a long-standing test to the government, local and international organizations at beginning years of the European millennium. Despite significant amounts of food aid assistance, there has been little measurable impact in reducing food insecurity. With this in mind, major grounds behind this is that food insecurity is a multidimensional and complex phenomenon varying through continuum of diverse succeeding stages as the condition becomes more and highly severe (USAID, 2010).

On the other hand, some studies show improvements in the recent periods over food security situation in Ethiopia. A study made by Leidy H. J. *et al.* (2011) using panel data show improvement in food security situation over the last six years. Government agricultural policy, peace and security and increasing farmer's productivity are among the facts which contributed for such improvements. The study also found that recurrent droughts, poor marketing, low credit accesses and supply of inputs to be the major factors determining the food security in Ethiopia. After decades of stagnation, Ethiopia's agriculture sector is showing signs of progress growing at 8% on average in the last five years which in turn had a promising sign for securing poverty reduction and food security (MoARD, 2009).

Despite the agricultural improvement over the recent periods, food insecurity levels in the rural areas become a major concern for the government and donors and thus 6.5 million people were covered by the safety net program of the government in 2009 (Daniel O. G. *et al.*,2012). According to Disaster Prevention and Preparedness Commission (DPPC), the number of 'needy'

Ethiopians in 2011were 3.2 million. In spite of encouraging changes occurring over the recent years, Tigray region is still one of the most affected regions by recurrent drought and food insecurity. According to the socio-economic survey conducted in the region in 1995, 16 % of the population revealed to be self-supporting, while the vast majority of 84% couldn't support themselves (USAID, 2014). Even during good agricultural harvest years such as 1995, 1996, 1998 and 2005, the number of people requiring food assistance in Tigray was more than 1 million, implying food security is a priority area for intervention in the region (USAID, 2014).

A study by Tigray Bureau of Agriculture in 2008 as cited in WFP (2009), show that out of the 34 rural *Woredas* of the region only three *woredas* (Kafta-Humera, Welkayte and Tsegede) are food secure. While the remaining 31 *Woredas* of the region including the study area (Kilte Awelalo) are classified as food insecure. The main causes of structural food deficiency in the region include severe environmental degradation, inadequate and erratic rain fall, lessening of soil fertility, lack of diversification, vulnerability to pests, lack of appropriate technology, lack of oxen for draft power, limited adoption of modern inputs and small size and fragmentation of land holdings (Fasil *et al*., 2007 as cited in Tsegay, 2009).

Table 1.1 Ethiopia's proportion of undernourished in total population

No.	Years	Number of people undernourished (in millions)
1	1990-92	37.3
2	2000-02	37.3
3	2005-07	34.3
4	2010-12	32.1
5	2014-16	31.6

Source: WFP, 2016

As can be seen from the above table, the number and proportion of undernourished in the total population has shown a relative betterment. Currently, from the total population 32.0% are undernourished in the country and nearly a quarter of the country's population suffers from a chronic hunger. Nevertheless, the figures above leave a point that there is yet much to be done. The difference among chronic and transitory food insecurity is highly blurred while gazing at the realism of a subgroup of virtual asset-less smallholding farmers who are being subjected to all types of food insecurity.

Majority portion of the smallholding farmers cannot meet their basic food needs even in ideal weather situations, they experience seasonal malnutrition and hunger and they are highly vulnerable to famine in times of erratic and low rainfall. Furthermore, it should be more emphasized on the impacts of recurrent droughts on the long term food insecurity than just on the immediate impacts on the rural livelihoods. There are two vicious cycles which are being observed; recovery from a food crisis being cut short by next coming drought and the threat of drought which frequently occurs but is mostly unpredictable in its severity and timing. This inhibits further investment in agricultural productivity enhancing inputs due to the downside high risk for the marginal farmers.

Even though, poverty and food insecurity are empirically and conceptually distinctive, in Ethiopia the overlap among the two is bigger than in most countries. In the 1980's real GDP grew by 1.9% while the population growth rate was 3.1% leaving a negative per capita by a rate of -1.2%. Further, in the same period agricultural growth rate was 2% per annum which has shown a negative rate in the four years during the periods of drought which was insufficient to cop up with per capita consumption. Yet, the country's economic growth has witnessed an improvement since Ethiopian People's Revolutionary Democratic Front (EPRDF) came to power in 1991 where the GDP growth rates has shown a positive difference of 3.1% from 1991 - 1.3% to 1998 - 4.4% (Berehanu E., 2007).

In line with the above, the performance of agricultural sector was highly variable and weaker, with only 1.6% per annum whereas sectors like industry (7.9% p.a.) and service (7.6% p.a.) were leading the country's economy base. The brunt of this impressive performance by the other sectors was limited and negligible to impact poverty and food security condition. A major indicator in the interconnectedness between poverty and food security is that the government uses food consumption standard of 2,200 Kcal per day to calculate poverty lines. By employing "National Minimum Consumption Basket", it was found that 50% from the total population was in food poverty in Welfare Monitoring Unit (Stephen D., 2010).

Ethiopia's National Food Security Programs

Agricultural sector policy of the previous regime (Derg regime[1]) was mainly characterized by nationalization of all commercial and private farms, proscription of agricultural private

[1] The Derg, Common Derg or Dergue (meaning "committee" or "council") is the short name of the Coordinating Committee of the Armed Forces, Police, and Territorial Army that ruled Ethiopia from 1974 to 1987 (https://en.wikipedia.org/wiki/Derg. Access on 07/11/2016, at 10:16AM).

investments, involuntary gathering of peasants into service cooperatives and producers and forced resettlement programs. During that time, the government controls all the outlets of agricultural markets, forced and obligatory food grains quota deliveries at a very low price and restraints in the movements of agricultural outputs from one region to another etc. These all and other hindrances of the agricultural policy of the regime were one of the major factors which contributed for the unsuccessful agricultural development of the country, by being bottlenecks for an enhanced smallholder farmer's productivity.

Subsequently, after a reform of the government in 1991, a new economic policy emerged with an objective to replace the former centrally designed economy with a market oriented economic system. Agricultural Development Led Industrialization (ADLI) was designed as a country's development strategy which stated that enhancement of agricultural and industrialization by employing domestic raw materials which are more labor intensive technologies. For the most part, ADLI strategy in Ethiopia focused mainly on the agricultural sector development. In addition to this, the full and detailed rural development policy appeared in 2001 and it mainly focused in the utilization of human and land resources to ensure a rapid economic development (GTP, 2010).

The late Prime Minister of Ethiopia Meles Zenawi ones stipulated that "*the agricultural sector remains our backbone and source of vulnerability. Nonetheless, we the country as a whole remain convinced that agricultural based development remains as the only source of hope for Ethiopia."* Ethiopia's agricultural development strategy mainly focuses on a sustainable productivity enhancement through modern technology. In the country, smallholding farmers are the major sources of the staple food items production and for the food supply of the country. The

government realizing the significance of the sector for the whole economy of the country, has given a huge priority to peasant agricultural development, which yet faces a complex problems. The present attempt and effort of the government is mainly geared towards solving the above mentioned major hindrances of the sector by employing efficient utilization of existing resources, enhanced use of agricultural extension services, a better supply of inputs like seeds and fertilizers, provision of better access to credit, infrastructural development and paving ways for an increased involvement of the private sector in the input and output marketing and linkages. The crop production sub sector's main objectives are to achieve an accelerated and sustainable crop production growth and productivity with a focus to achieve self-sufficiency in food grain production, enhanced food security and poverty reduction (MoARD, 2009).

In order to achieve the disquieting food insecurity condition of the country, food security program was designed in November, 2003. The program's main theme and goal emphasized on the radical reduction of food insecurity on the highly vulnerable households. With a theme for achieving food self-sufficiency in the short-term and food security in the long term, the government redesigned its food security programs and incorporated four major food security constituents with distinct targets and integration arrangements between them (MoARD, 2009).

Productive Safety Net Program (PSNP)

Productive safety net program emphasizes on addressing basic food needs of primarily with the chronically food insecure rural households through a productive safety net program which is financed through a multilayer predictable resources. It was developed in 2004 and was incorporated in the framework of the national food security program. It revolved mainly on the three pillars of food security which address availability, accessibility and utilization of food.

Initially, productive safety net program mainly focused on districts which are being affected by high recurrent drought and on districts which were under a continuous relief support and have been considered to be chronically food insecure. The main objectives of PSNP are to supply food transfers to food insecure population in chronically food insecure districts, to prevent asset depletion at household level and asset building at a community level. According to Negash B., (2012), the program addresses an immediate human needs while at the same time;

- Supporting and enhancing rural transformation process,
- Averting the long term consequences originating from short term consumption shortages,
- Encouraging households for more engagement in the production and investment, and lastly,
- Supporting market development by enhancing household's purchasing power.

The productive safety net program (PSNP) was initially launched in 2005. In the early 2007, it reached about 8.3 million rural smallholder farmers in eight regions of the country; Tigray, Amahara, Oromiya, Southern Nations Nationalities and People, Afar, Somali, Harari and Dire Dawa. In the initial stages of 2005-06, about 55% of the transfers were made in the form of cash and the remaining 45% was made in the form of food. Moreover, 19% of the beneficiaries have received a direct support while the remaining 81% received through public work benefits (Amdissa T., 2007). The PSNP which started its implementation by the year 2005 following the enormous disasters of 2002, was designed and implemented with an intention of harvesting outcomes in CFI (chronically food insecure) districts. It was designed with two sub components; Public Works and Direct support, which was designed to bridge food gaps with food or cash transfers while building

community assets (Andersson C., Alemu M., and Stage J., 2005). As the name implies, safety net in case of food security implies a safeguard against adverse situations, and so the Government of Ethiopia implemented safety net program with the intention to safeguard the chronically food insecure societies and the vulnerable so as to yield the following listed outcomes;

- Assured food consumption (graduation), averted asset depletion and asset creation for both household and community mainly for the chronically food insecure, and
- Stimulated market, service access and natural resource enhancement for PSNP and other households and finally creation of a rehabilitated and enhanced natural environment

As mentioned, the major purpose the productive safety net program is to assure and provide transfers to chronically food insecure population in such a way which can prevent assets depletion at household level and which can create asset building at communal level. In concomitant to this, for these households the quest for bridging food gap arises in times like insufficient food production and limited income sources (Alemayehu et. al., 2008). The productive safety net programs employs a mix of community based and geographic targeting to spot out chronically food insecure households from selected food insecure districts. The historic recipients of food aid were used to identify eligible beneficiaries in each district. Coll-Black et.al (2011) has also stated the beneficiaries' targeting criteria by referring to the Government of Ethiopia's safety net program implementation manual, beneficiaries of the program should be members of the chronically food insecure community, where the beneficiary households should be the ones who have faced a continual chronic food shortages usually three or more months of gap in the prior three years. The

beneficiaries should also include households who became insecure as a result of a sudden loss of assets and who are unable to support themselves with basic necessities as well as households who are without any family support or other means of social protection.

Household Asset Building Program (HABP)

As a second major component of the policy, the Government of Ethiopia gave a huge emphasis on the income sources of rural households, so as to diversify their income sources and enhance their productive assets for food insecure households in a chronically food insecure districts of a region. Household Asset Building Program plays a major role in attaining the high level goal set for the second phase of the food security program, which incorporates the graduation of 80% of the safety net beneficiaries. The HABP emphasizes on supporting market oriented and income generating activities and linking chronically food insecure households to credit providing institutions like microfinance. Even though FFP (Food for Peace Program) of United States of America supports the objectives set by HABP, the activities under the program will not be funded through non-emergency programs. Till the availability and accessibility of resources, Ethiopian government and USAID will consider funding under separate awards, for activities which contribute for the objectives of HABP (Daniel O. G. *et al.*, 2012).

Complementary Community Investment Program (CCIP)

Complimentary community investment is the third component in the food security program of the Government of Ethiopia. It intends in addressing an adequate access to infrastructure for populations mainly from food insecure districts and it is expected to support and strengthen in creation of an enabling environment in the chronically food insecure districts by funding from small to medium scale community infrastructure programs (Negash B., 2012).

Resettlement Program

Voluntary resettlement program is the fourth and last component of food security program of Ethiopia. The program's expected outcomes include adequate access to food, income and an enabling infrastructure, services and natural environment secured for resettled households from a productive safety net program districts and facilitating growth by serving as a nucleus for investors. For instance, in four regions of Ethiopia, a voluntary resettlement of 2.2 million rural people from land scarce area to areas with productive land availability was executed and were guaranteed with 2 hectares of fertile land and agricultural inputs between the period of 2002 and 2007 (MoARD, 2009).

Designing bases for PSNP in Ethiopia

From the various bases for designing productive safety net program in Ethiopia, social protection takes the lead, and similarly, looking at different experiences in the globe, productive safety net program is the biggest social protection instrument and it is supported by a huge volume of documentation on the impacts and the operational agreements (Areaya Y. et. al., 2010). Over the past five decades, Ethiopia has faced severe famines due to droughts and these incidents were happening even in years with normal precipitation and has led to recurrent shortages of food and hunger for millions. (Anderson C., et. al., 2005). Following the shock of 2002 which has starved nearly 15 million people, the Government of Ethiopia has declared that "*unpredictable shocks do not suddenly lead to acute food insecurity unless the people are already poor and vulnerable, as is the case of chronically food insecure*". This has led to the conclusion that the food crisis in the country was mainly because of development related problems; i.e., the inability to manage the risks which are associated with the erratic weather experiences and the case that numerous rural areas really faced a chronic food insecurity (Areaya Y., et. al., 2010).

Since Ethiopia has experienced a very long history of food insecurity with analogous history relief assistance, it has become Africa's first leading food aid recipient (Abdulai A., et. al., 2005). For several years relief assistance was provided in the form of emergency assistance despite the growing evidence for the increasing demand for relief assistance were not the results of rainfall related failures or other similar shocks, but rather it was the result of an increase in the extent and depth of poverty. After the emergency food assistance need faced by 15 million people in the year 2002-03, the Government of Ethiopia initiated in association with development partners "*The New Coalition for Food Security*" (MoARD, 2009). In the early 2003, the government convened a session with key government officials, donor organizations, United Nations and similar NGOs to start a campaign for the reduction of hunger and food insecurity. Subsequently, "The New Coalition for Food Security" was initiated in Ethiopia with main aim of identifying strategic interventions for addressing and mitigating the critical levels of food insecurity in Ethiopia (Areaya Y., et. al., 2010).

Ashley S., et. al., (2006) asserted that the productive safety net program is one of the government of Ethiopia's major reform programs, not only food aid in cases of emergency but also to a more predictable assistance, and signifies an important strategy transformation of the government to reduce hunger and meet the millennium development goal of 'reducing hunger by half'. Productive safety net program represents a pioneering initiative for Ethiopia to tackle chronic poverty through a highly predictable response with a support of potential resources for the actual problem. Now a days, productive safety net program and emergency relief are being under taken as high priorities of the government and donor agencies. Due to the aforementioned reasons, there has been witnessed in a shift of mindset from characterization of recurrent food needs as a short term problem which is caused by specific shocks to poverty related aspects (MoARD, 2009).

In concomitant this, productive safety net program is an affiliation between Ethiopian government and groups of donors where the donors who intend a direct cash support pooled their support to a World Bank multi donor trust fund which provides a direct budgetary support to the Ethiopian government and those who are providing food are channeled separately. In line with this, all the partners have agreed to strictly adhere for a unified stream of monitoring, evaluation and technical advice (Areaya Y., et. al., 2010). Moreover, the Federal Democratic Republic of Ethiopia (2015) stated, productive safety net program was initiated with following goals and points;

- To facilitate transfers to chronically food insecure population in districts identified with chronic food insecurity levels in such a way that can prevent asset depletion at household level and build assets at community level. The program will therefore address instantaneous human basic needs while concurrently supporting process in the transformation of rural areas, encouraging households to participate in investment and production and endorsing market development by enhancing households' purchasing power.

- To address basic food needs of chronically food insecure households by employing multiyear predictable resources. The program transfers food or cash in an exchange for labor in public work projects along with direct support for those who are unable to work.

Productive safety net program was designed to support vulnerable and chronically food insecure households as opposed to households who are affected by a transitory food insecurity which occurs as a result of a specific event for limited period of time. The primary objectives are

averting chronically food insecure households from selling assets in times of difficulties and to support community assets building by engaging in public work programs. PSNP's goals are chiefly the reduction of households' vulnerability and enhancement of households and community resilience to shocks and contravening the cycle of dependence on food aid. Finally, the main goal is to enable chronically food insecure households to acquire sufficient income and assets in route for "graduation" out of food insecurity (Breen et. al., 2010).

As discussed in detail above, there is a dire need to enhance households' food security condition in the country as a whole. As the emerging consensuses suggest, households food security condition can easily be accomplished through the following two development strategies; intervention that can protect poor from hunger and investments which facilitate income generation, accumulation of asset and protection against asset depletion through provision of improved technologies for agricultural development, infrastructure development and other similar efforts and facilitation of a platform for which growth intervention efforts can take place. Provided limited resources for the first one, there needs to be a high allocation instrument. As Berhane H., (2009), Daniel O.G. et. al. (2012) and Alula Pankhurst and Philippa B., (2004) generalized, the main reasons behind for setting up PSNP in Ethiopia have been summarized as follows;

- Social protection in a predictable way by employing predictable resources during seasonal severe times,
- Attitudinal change (being aware the country's main problem) since the problem is chronic food insecurity as it is not a result of a temporary problem and may not be possibly be solved in a very short time,

- Integration of funds to the country's development at both macro as well as micro level development.

PSNP's budget for the year 2010-14 was around US $2.1 billion which has increased by about 50% from the budget between the years 2005-09 where it was about US $1.4 billion. In addition to this, when household asset building program is included, the total budget is more than US $2.2 billion (WFP, 2009). Hence, the government of Ethiopia has implemented PSNP for about 5.2 million beneficiaries in 2005 and was scaled up to 7.2 million in the year 2006 by employing "learning by doing" approach. The initial five years phase of PSNP ended in 2009 and the second phase was initiated in the end year of 2009 which lasted on 2014 (Federal Democratic Republic of Ethiopia, 2015).

Productive safety net program in Ethiopia's Food Condition

Various studies have revealed that there is no question on whether PSNP is minimizing or fulfilling food gap. Major achievements of the program were witnessed after looking at the famine records before and after its implementation, even though recurrent droughts occurred in Ethiopia, after the implementation there was no famine recorded. This reveals the positive impact and success in the enhancement of minimizing food gaps and shocks (Negash B., 2012). Regarding asset prevention, a study made by Wiseman W., et. al. (2011), indicated that households who are participating in productive safety net programs have benefited by decreasing their asset depletion level. However, there are some controversial findings where it appeared that PSNP has no impact in protecting livestock in cases of shocks (Anderson C., et. al., 2005).

In concomitant to this, Amdissa T., (2007) conducted a study regarding PSNP by employing 8 districts in Ethiopia by which the first productive safety net programs was started in

four recipient regions; Tigray, Oromia, Amhara and Southern Nations, Nationalities, and Peoples' Region. In the study, he concluded that 3 in 5 beneficiaries or 60% avoided the sale their assets to fulfill food needs, which indicates that PSNP participant's asset depletion has shown a betterment. He also added that one fourth of PSNP beneficiaries have acquired new skills and better asset accumulation in 2005-06. Majority of the cases (86%) in the study also showed that PSNP has played a major role in assisting them for acquisition of new skills through the trainings in public work projects and 55% of the beneficiaries revealed that PSNP assisted them to acquire and build their assets. Wiseman W., et. al. (2011), also showed that program performance as a highly significant variable where households receiving lower levels of transfer witnessed a less or no increase in asset holdings while households participating in public works and who are receiving regular and high transfers have witnessed a significant change in their asset holdings.

Graduation in PSNP and FSP

Chronically food insecure households are the major targets of the Food Security Program (FSP) where the program works firstly on stabilization of assets, then asset accumulation which is done through a series of inputs from the program and from development interventions which makes households food sufficient, and finally to a sustainable food security (Graduation from PSNP). In such a way, households will graduate from PSNP first, and subsequently FSP graduation (MoARD, 2009). Hence, households' graduation is a two-step procedure; first graduation from PSNP and then graduation from FSP.

Graduation generally occurs when a given household is taken out from the PSNP and graduation here refers to the notion that the household is no longer chronically food insecure as well as the household has the basic economic strength to resist from falling back to being

chronically food insecure in the future. Alula Pankhurst and Philippa B., (2004), defined graduation as households who were chronically food insecure marks off to an independent and strong livelihood. As various evidences revealed, productive safety net program has benefited the society at household and community level, but it should be noted that the significance level varies accordingly with geospatial variations. Afterwards, when a productive safety net program beneficiary graduates, household asset building program (HASBP) will take over the graduate in order to get the definitions given to food security (MoARD, 2009). Therefore, it can be concluded that in Ethiopian context for households to be considered as food secure, first they need to graduate from productive safety net program where they will be declared as food self-sufficient and subsequently food secure.

Determinants of food insecurity

Food insecurity continues to be a huge challenge for both developing and developed nations in the globe. The discrepancy between the two nations lies within the magnitude of the impact on the proportion of the population and its intensity. Food security can be affected by various complex underlying factors. Various recent studies on food security has also revealed that basic livelihood resources like human resource, non-food factors which include health care, education, clean water and safe sanitation, urbanization, population growth and displacement of people greatly impact food security and nutritional status of a society. In addition to these factors, agricultural inputs and natural resources have a great impact on food security (Abebaw S., 2003). According to FAO (1996), food insecurity may occur due to the following reasons;

- The relative density of human and livestock populations, and the resulting due to squeezed land resources,

- The inability of agricultural practices to maintain required land productivity levels,
- Inadequate adoption level of modern farm technologies,
- Irreversible and often extensive land degradation levels,
- The value and worth given to livestock especially cattle in the socioeconomic system and the accomplishing desire to sustain large livestock holdings.

Food availability and its production is a function of agricultural policy and strategy, natural resource base and the production technology. About three fourth of the variation in productivity of Sub Sharan Africa's agricultural sector can be explained through conventional inputs such as land, labor, livestock and physical assets (FAO, 2011). A study by Frankenberger T. R., et. al. (2007) revealed that policies related to provision of rural infrastructure, supply of modern agricultural inputs, credit, land, markets and market chains, and extension services are crucial determinants to agricultural productivity and agricultural sector development and consequently sustaining food security condition.

The major causes of food insecurity in developing nations include environmental degradations, political and social environments which preclude a sustainable economic growth, poor human resource bases, macroeconomic trade imbalances, natural disasters like flood, drought, locust infestation, poor health and inadequate infrastructure (FAO, 2011). According to Mwanki A., (2005), all these stated factors contribute either to insufficiency of access to food by individuals and households or insufficiency of national food availability. In addition to this, other factors such as limited agricultural productivity due to technical assistance accessibility, rapid population growth, immature agricultural sector and lack of awareness about soil fertility management pose a significant trait to food security in most developing nations (FAO, 2016).

Moreover, market related challenges also stand as a huge barrier for majority farmers, barriers such as market standards, poor infrastructure, limited market information, lack of product differentiation, shortage of capital investments and government policies (Birara E., 2015). Migration of male members of the household has also been recognized as one of the major causes of food insecurity in rural households. A study made in Lesotho rural village revealed that children and women have suffered from poor hygiene and lack of food because women were seen too exhausted to clean and cook in times of peak agricultural duties (Abdulai A., Christopher B., Barrett Hoddinott J., 2005). Health related factors have also been asserted by various studies as huge traits to food security condition of farmers in developing nations. Infectious diseases such as tuberculosis, malaria and HIV/AIDS not only diminish the working hours to agriculture field work, but also raise the burden of the household in accessing food (Birara E., 2015).

Distinct combinations of various factors have resulted in a serious growing challenge of food insecurity in Ethiopia. Various studies made to assess determinants of food security in Ethiopia put forward a similar common deterring factors as mentioned above. A study conducted by Shishay K. and Messay M., (2014) found farm land size, livestock ownership, employment opportunities, farm inputs availability, level of education, health status of household members, market access, weather conditions, level of technology adoption, oxen ownership, crop disease and family size as major determining factors of rural farm households' food security condition in Ethiopia. A study in Oromia Regional state by Ahmed M., (2015) identified similar causes of food insecurity such as farmland size, fertilizer application, per capita aggregate production, household size, educational attainment of household heads and oxen ownership as major impacting factors of food security condition of farming households.

Environmental factors

Current environmental condition deterioration which caused a decrement in food production has been a major cause for seasonal hunger in numerous African countries. According to FAO (2016), El-Niño weather condition in the year between 2015-16 is one of the most severe and widespread where about 60 million lives were at stake by the impacts related to floods, droughts and extreme cold and hot seasons whereby affecting the food security and nutritional condition of people around the globe. Ethiopia is one of the highly drought affected nations by this weather trauma leaving behind about 15 million lives either temporally or chronically food insecure (FAO, 2016). Though this weather trauma has already passed, the devastating impacts left are still growing. For instance, harvests in numerous parts of the country have either failed or declined tremendously.

According to Frankenberger T. R., et al. (2007), distinct climatic conditions influence agricultural productivity as well as food security status of households especially the vulnerable since the contribution of agricultural productivity to a society is vital and largely dependent on the rain fed system. A study made by Boussard J., et. al. (2005), revealed that about 99% of Sub-Saharan African farmers grow food under the subsistence rain fed agriculture system, which makes them highly vulnerable to extreme weather conditions. The main reasons behind this is a high decline on investments regarding high yielding inputs such as irrigation systems, seeds, fertilizers and technology.

Demographic factors

Various censuses made in this vicinity revealed that the population of Ethiopia is rising at an alarming rate from time to time with inability and gap to cop up with the limited food production. The current population size of Ethiopia is about 90 million with a growth rate of 2.9% (CSA,

2015). Moreover, it has been asserted by CSA (2015) that the average household size is relatively higher as compared to other Sub Saharan African countries. Studies also show that household size at micro level is one of the most crucial factors which can influence food security status of households especially in the rural parts of the country.

Majority of the smallholding farmers in Ethiopia are small scale subsistence producers with limited non-agricultural activities participation due to financial capital and land holding size limitedness. The other demographic factor which is hindering food security condition for farming households is sex of the household head. A study made by Degafa T., (2002) in different parts of Ethiopia came across similar conclusions that female headed households livelihood is more disadvantaged as compared to the male counter parts. The main justification behind was due to female households heads' limited access to livelihood resources such as education, land, labor force, savings and oxen, and social and religious taboos which prohibit women from engaging in various livelihood activities. It is also noted that family size exerts a high pressure on consumption than labor contribution for production.

Socio economic and cultural factors

Ethiopia's agricultural sector is a home for about 85% of the total population coupled with a GDP contribution of 56% and 67% for export earnings (CSA, 2015). Given the fact that the level of agricultural technology adoption, there should exist a minimum set of farmland holding size to produce a sufficient amount of production. Households' land holdings play a fundamental role in livestock and grain production in most rural economies, it is an indispensable resource for the agriculture sector. Basic infrastructure and farm equipment are also crucial components of physical capital which influence the daily activities of rural smallholding farmers. Farming equipment and

machinery ownership of rural households enable them to enhance land and labor marginal productivity and it is also useful for households with a high opportunity cost of labor, like in cases for those who are pursuing off-farm employment opportunities.

A study conducted by Kidane H., *et al.* (2005) revealed that the shift from non-fertilizer user to a fertilizer user can boost up the probability of food security from 33.8% to 44.3%, and yet in the country those who employ fertilizer are insignificant in number due to their limited purchasing power. Furthermore, use of fertilizer in most studies conducted in this vicinity is considered as a proxy measure for technology, where adoption of fertilizers can boost up agricultural production yield and can enhance food security of households especially the subsistence farmers.

Moreover, access to various segments of infrastructure like roads and markets advance agricultural intensification and livelihood diversification strategies. Sufficient infrastructure such as main markets and roads that can enhance access to crucial agricultural inputs like seeds, fertilizers, pesticide chemicals and other similar agricultural inputs supplements are indispensable (Osman A. and Tesfahuna F., 2003). Even though, the current government has made huge efforts coupled with a significant progress in road development, there is yet much to be done still by referring to the relative average African road infrastructure coverage. In the country, due to lack of on time and proper facilities of transportation, there was a counted estimate about 30% post-harvest loss from the total production (WB, 2005).

In addition to the above, education has a remarkable impact on the food security condition of rural households. Better educational attainment by household heads in rural areas has the advantage of utilizing modern agricultural inputs such as fertilizers and seeds and other similar

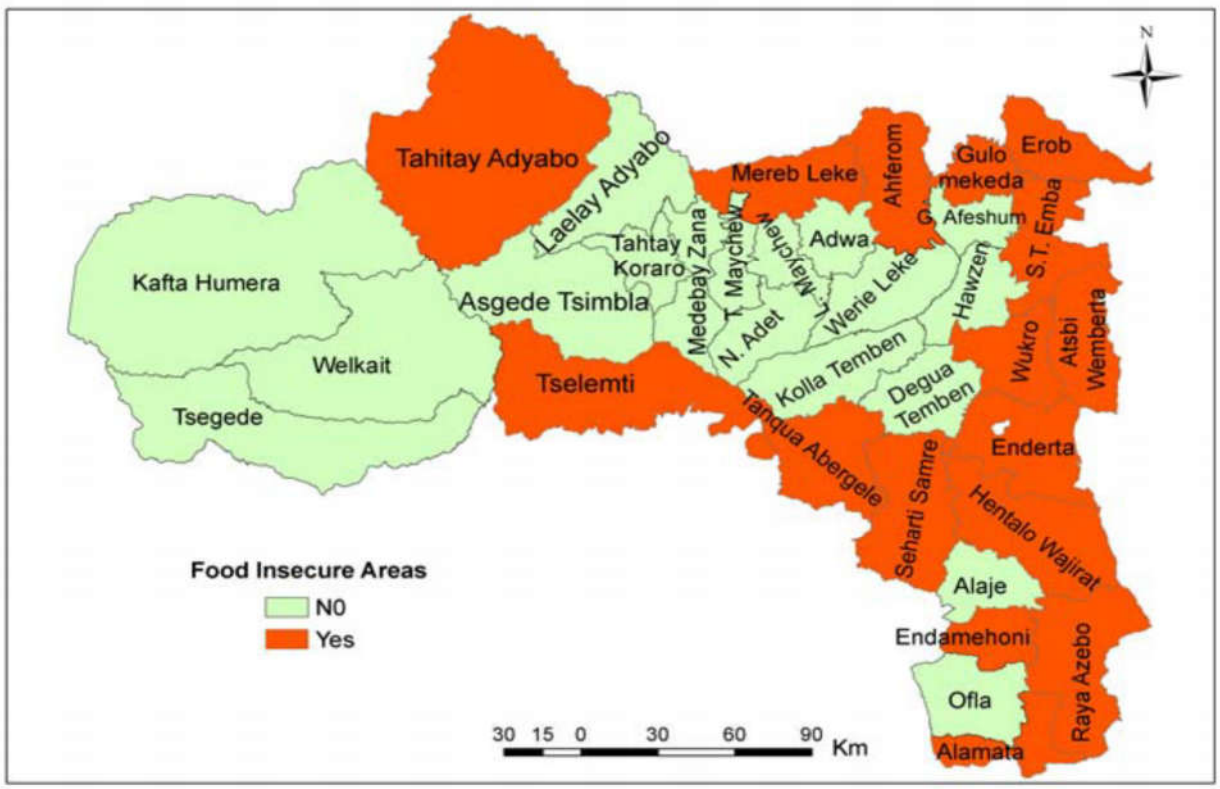
technological packages efficiently. This in turn has the power to lead the households to diversify their incomes and to a better food security condition. In similar lines, cultural events like extravagant ways of eating habits in social arrangements, limited food preferences, religious festivals and ceremonies also post a significant trait on the saving or expenditure and food security condition of rural households. In general, social services and infrastructural development such as transportation, roads, communication, health services, education and agricultural services, there appears a major challenge in sustaining agricultural production growth and food security. Stephen D., (2010) put forward the current conventional food security challenges as conceptualized below;

- Landholdings are very small even tough unusually evenly distributed for allowing most farming households to attain food self-sufficiency,
- Population size increase decreases landholding sizes further and leads to an intolerable stress to the already fragile natural resources base,
- Soil fertility is already too low and it is diminishing due to an intensive cultivation coupled with limited use of production yield enhancing inputs,
- Highly recurrent droughts add up a huge impact on food production shocks leading to abnormally smaller yields;
- Inadequate off-farm employment opportunities limit migration and diversification options of communities and households whereby leaving them trapped in an unviable agricultural production.

The Tigray's Case

Tigray is one of the nine regional states in Ethiopia, and is one of the worst drought affected area which has suffered high food deficits for several decades. The annual average crop production of the region is 12,811,000 quintals which has a deficit of 6,087,326 quintals of food demand annually (USAID, 2014). In most sever areas of the region, they face an annual food deficit of 73% implying that these drought prone areas with an annual production coverage of 27% (Shishay K. and Messay M., 2014). The most catastrophic and disastrous natural event which is affecting the region's food security is drought. This extreme drought situation has been extending over numerous seasons which has already caused a huge stress on the coping mechanisms and food security condition of majority smallholding farmers in the region.

Figure 1.3 Food insecure *Woredas* in Tigray region



Source: Tagel G., (2008)

As can be seen the above figure 1.3, 16 districts are highly prone to drought and majority of the people cannot produce enough to feed themselves which in turn forces them to depend solely on direct food aid for survival. The major determinants of food security at household and regional level are quite complex in the region. The determinants are both the combinations of manmade and natural factors. According to Tagel G., (2008), he grouped the underlying determinants into three major components as socioeconomic, natural and policy failure factors. Social determining factors such as traditional farming practices, population pressure and economic factors like shortage of farming land, poor infrastructure and poor productive asset holdings as major factors which are responsible for the region's household food insecurity. In the region, one of the main socioeconomic challenges is population pressure where by the high population pressure has led to a food self-insufficiency at household level. In line with this, a stagnation in agricultural technology which deterred agricultural production yield made it difficult to cop up with the rising food demand. Moreover, limited infrastructural developments such as rural transportation, marketing and others which are essential to attain food security at household level especially in poverty alleviation still stand as major determining factors in the region.

Despite the fact that there are good traditional practices which are contributing to the development of the region, yet there are also practices which do not permit innovative works such as social and religious taboos, credit accessibilities and etc. are affecting negatively the effort to attain food security in the region. These practices include non-working religious festivities, huge memorial festivities, extended wedding and other similar ceremonies are the prominent ones which deplete household food stocks. Apart from this, farm land and other productive assets such as livestock and irrigation limitedness highly determine agricultural production.

Regarding the natural factors, environmental degradation and drought are the most crucial factors in achieving food security in the region. The highly subsistence and rain fed crop production system in majority portions of the region has left farmers to be highly vulnerable in cases of extreme weather circumstances. The inadequate and erratic rainfall pattern in drought prone areas of the region has been responsible factor and these extreme circumstances affected productivity by instances such as early end of rainy season. Furthermore, degradation of natural resources like soil and forest resources is also a serious challenge. In broad terms, ecological condition of the area has become highly fragile than ever and pose as a major deterring factors for the decline in the agricultural productivity, high incidences of drought and shortage of food. In general, combination of short and long term deterring factors can thoroughly explain the trends in the caseloads of food insecurity incidences in the region. The long term aspects like population growth, limited size of land holdings and environmental condition led to a significant decline in productivity and depletion of productive assets among households and communities in the region (Birara E., 2015).

In parallel to the above mentioned factors, unsuitable government policies and weaknesses of institutions are also responsible factors in the severe food insecurity, underdevelopment and poverty incidences in the region. In cases of food shortage in a given area, the government is the sole responsible for failing to prevent it before it creates high damage. Regarding the previous regimes, recent studies have asserted that the strategies and development policies followed are the main factors for the severe disasters. Historically, the 1974 feudal and the Derg regime between 1974 and 1991, development policies and strategies to enhance agricultural productivity and to promote food security at household level were almost nonexistent. The country as a whole suffered from ill-advised economic development policies and strategies in the socialist Derg regime

especially via intentionally marginalizing people on the basis of their ethnicity and race. Region wise, Tigray was one of the severe victims of the regime especially in case food security. There was a lack of development programs which are aimed at promoting rural development and agriculture (Arega B., Woldeamlak B., and Melanie N., 2013).

Moreover, lack of good governance components such as transparency, rule of law, enhanced public participation and human rights led to the deprivation of the poor in the region. In broad terms, previous regimes' inappropriate development policies and more than a decade long civil war and unrest in the region were one of the major causes of food insecurity via worsening the depletion of assets and destruction of physical and social infrastructures in the region. The major factors that have been used as explanatory variables in this particular study which are presumed to have a huge role in the conceptual assessment of food security are highlighted as follows;

Household Demographics: As dependency ratio and family size increase, the extent of vulnerability to food and livelihood insecurity also raises. This because the higher the adult equivalent value of a household, the higher would be the level of consumption which requires large quantity of food and socio-economic investments entailing negative relationship with food security. While with regard to age, older household heads are have better access to land than the younger heads, in that younger men may either have to wait for the land to be redistributed, or have to share the land within their families. While for gender, households' headed with female are comparatively food insecure due to limited access to assets, religious and social taboos which prohibit women from engaging in various economic activities, household duties such as fetching water, preparation and processing of food for consumption and etc.

Educational Level: Higher level of education and literacy is directly related to food security and better livelihood strategies engagement. This is because of the fact that literate and educated farmers acquire a relatively better exposure to farming technologies, engagement in non/off-farm activities etc.

Size of Cultivated Land: Farmers who have larger farmland are relatively food secure comparing those with smaller farmland holders. The main reason lies on the fact that there is high possibility to produce more food items in a larger size of land, it can stand as income sources by renting or sharing out extra land etc.

Number of Oxen Owned: Oxen are inevitable means of farm operation to traditional agricultural practices especially in developing countries. Its possession provides source power for crop production which in turn enables the household timely land cultivation and also stands as a means for income in times of scarcity. Therefore oxen possession has positive effect on rural household food security and livelihood strategies.

Non/Off-farm Income: Usually the income generated from working in own farm is inadequate to meet the household's demand for food and basic necessities, and supporting cash income from off-farm and non-farm employment opportunities is an asset for households. The income generated from such activities increase households' food security and basic livelihood necessities through enhancing purchasing capacity. Therefore, households' with additional off-farm and non-farm income are more likely to be in a better food secure condition as compared to their counterparts..

Fertilizer adoption: Households who adopt fertilizers have better yield than those that do not use, in which case they are more likely to be food secure. In addition to this, improved

seeds adoption has also a remarkable potential for enhancing agricultural output in both quality and quantity. The use of high yielding varieties could be one source of difference in the amount of output obtained per unit area. Moreover, irrigation also assists farmers' in the production of varieties of crops especially in areas with low rainfall records.

Productive Safety Net Programme (PSNP) participation: Households in vulnerable and food insecure areas cover their food shortfall through income and food obtained from safety-net program. Households engaging in safety net program are more likely to be food secure and can lower their vulnerability.

Researcher's motivation for the study

The study's initial ideas originated form the researcher's familiarity and various opportunities of visits to the study areas. During study visits and personal acclimatization to the place, the researcher got a chance to meet various smallholding farmers which gave an opportunity for the researcher to witness the dedication in their eyes and their efforts and struggles to pull themselves out of poverty. During the field visits in the rural parts of the region, the researcher observed challenges with regard to infrastructure, agricultural productivity, food security and health conditions of rural households. Yet, the researcher was deeply interested by the food security condition of the smallholding farmers. Believing, the other challenges can be dealt when basic necessities of people are fulfilled, as a hungry man cannot think of fulfilling other needs before having something to eat. There is a local saying "A hungry man is an angry man". After all these thoughts, various questions came to light; with the igniter question of why? And how come this much households are not able to fulfill their food needs? What are the factors deterring them from relishing their human right?

The researcher began gazing for answers in various reports and independent studies made on the related area of concern. More detailed questions started to arise, questions such as; is it because of lack of enough production? Or lack of other sources of income? Or lack of appropriate policies and strategies? Or natural disasters in the area? There came the issue of livelihood's importance in the food security condition of the smallholding farmers. Various literatures supported that the major concern of most developing countries which is closely linked to the issue of food security is livelihood. The concept of livelihood in the beginning was built up on the evolution of concepts and issues related with food and nutrition security. Livelihood puts food security in a wider perspective. In general, the term security stands for freedom from some fear or danger and having the necessary protection against it. In the case of livelihood, security stands for the means of securing the provision of basic human necessities like food, shelter, clothing, health and education. From this, it can be seen that whenever household's livelihood is secure, it's expected to be food secure as well. However, a food secure household or individual might not possibly be secure in livelihood. In line with this, a phrase by Stephen D., (2010) revealed that as the population and food production statistics in the country is notoriously unreliable, most estimates of food consumption requirements and availability are just guesstimates as possible. Therefore, this particular study is intended to describe food security condition and livelihood resources of rural smallholding farmers in Tigray region of Ethiopia. The major focus of the study is on finding out the magnitude and determinant factors of food security and livelihood resources in the area.