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Review

Why does food insecurity persist in Ethiopia? Trends, challenges and prospects of food security in Ethiopia

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This paper seeks an answer to why does food insecurity persists in Ethiopia with extensive review of literature? Nearly, one billion people globally are food insecure and food security challenges are widespread in the developing countries. Ethiopia has been renowned as a country of famine and food insecurity. During the period between 1958 and 1977 over 25 million people were affected, from 1974 to 1991, it was wracked by political instability, war, famine, and economic decline. Since1991, the country has shown commitment to achieve food security. As a result, there has been a reduction of food insecure people from 52 to 30% and the proportion of people living below the nationally defined poverty line from 44% in 2005 to 29.6% in 2011 although food insecurity remains a big challenge. The structural challenges that drive food insecurity are drought and low productivity due to limited use of agricultural technology. Macro-economic challenges like alarming food prices and unemployment determine the prospect of food security. Therefore, there is an urgent need to transform access to agricultural technology by farmers and employment opportunity. Finally, it was argued here that the government should invest on food to stabilize price and safeguard the poor.

Key words: Drought, food aid, famine, food price, food security, malnutrition.

INTRODUCTION

Conceptual background

In many documents, food security, hunger and malnutrition were used interchangeably, in spite of their very unique and different concepts. Conceptually, there are differences among the three concepts although they have close linkages. For instance, FAO reports on the state of food security present world hunger progress as an indicator of food insecurity (FAO, 2008). Since 1996 world food summit, food security was defined as "a situation when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their

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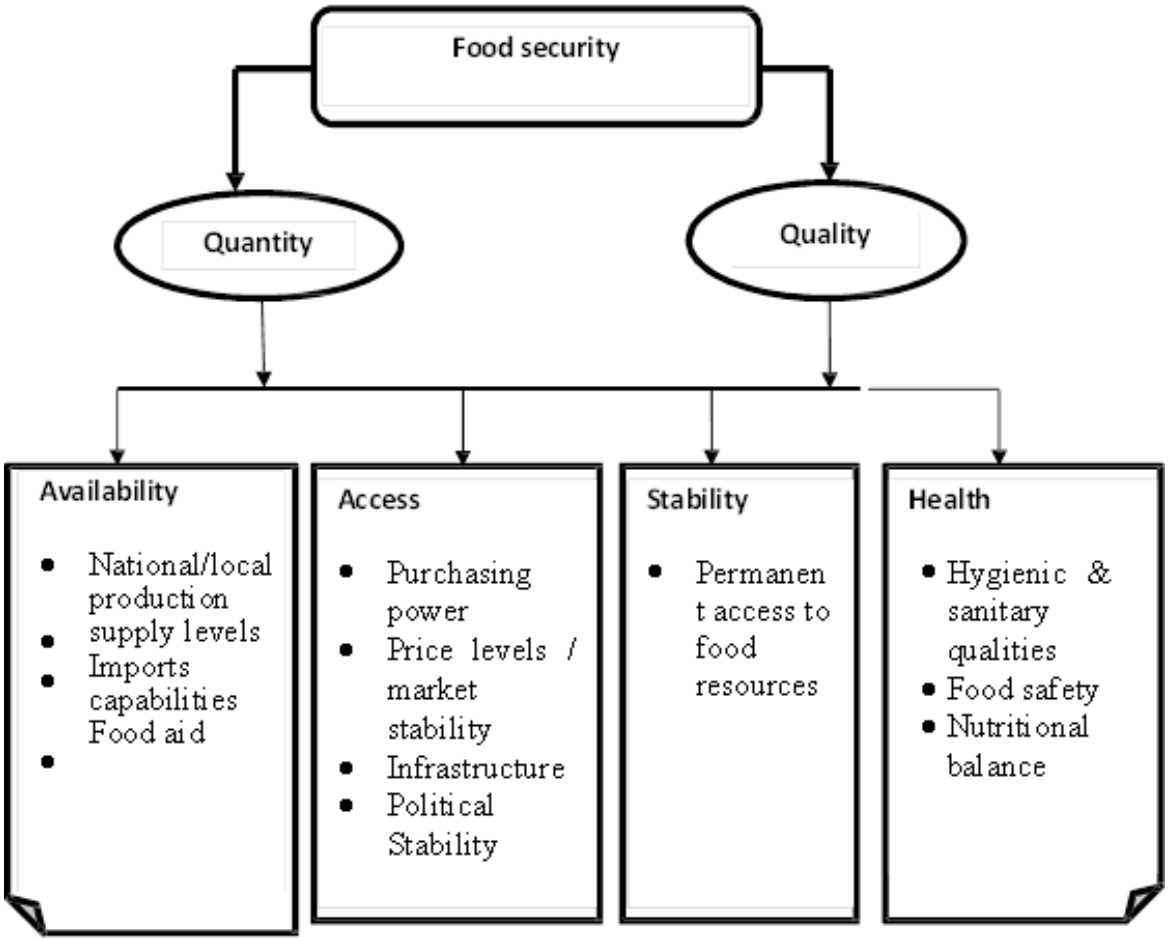

Figure 1. Dimensions of food security (Momagri, 2015).

dietary needs, and food preferences for an active and healthy life", where hunger refers to the body's way of signaling that it is running short of food and needs to eat something. FAO defines hunger as consumption of fewer than about 1,800 kcal per day (the minimum that most people require to live a healthy and productive life) (IFPRI, Concern, WHH, 2010). According to WFP, the average person needs approximately 2,100 kcal per day to maintain a normal, healthy body (WFP, 2012). Victims of hunger live on significantly less than 2,100 kcal per day for extended lengths of time. World Food Program defines hunger as a condition in which people lack the required nutrient–both macro (energy and protein) and micro (vitamins and minerals), for fully productive, active and healthy lives (WFP, 2009). On the other hand, famine refers to drastic loss of body weight, increase in morbidity and rise in death rates as a result of hunger (van Braun et al., 1993). On the other hand, malnutrition is health disorders due to too much or too little food energy or nutrients. Malnutrition includes over nutrition as well as under nutrition (Blössner and de Onis, 2005).

Hunger can lead to malnutrition, but it refers to under nutrition. It is similar to undernourishment, which is a situation where people whose dietary energy consumption is continuously below the minimum required for fully productive, active and healthy lives, and is related to poverty. For children especially, being hungry or malnourished means they can die from common infections or suffer poor health in the long run, limiting their ability to learn in school, work or progress (DFID, 2015). Potential consequences of food insecurity include hunger, malnutrition and negative effects on health and quality of life (Campbell, 1991). Famine and hunger are both rooted in food insecurity. [1]Chronic food insecurity translates into a high degree of vulnerability to famine and hunger. Figure 1 illustrates the various components of food security, along with the variants that influence it. There are quantitative and qualitative aspects of food security. Both dimensions

[1] Chronic food insecurity is a long-term or persistent inability to meet minimum food consumption requirements. As a rule of thumb, food insecurity lasting for at least six months of the year can be considered chronic (WFP, 2009).

Table 1. Summary of literature used.

Issues addressed	N	%
Causes and drivers of food insecurity	17.8	25
Policies, strategies and programs	15.7	22
Food aid interventions	08.1	12
Concepts and guidelines	08	12.1
The state and facts of food insecurity	18	27.3
Total	66	100

link to availability, access, utilization and stability of food security (Momagri, 2015).

Problem context

Ethiopia has been renowned by famine and food security for more than 200 years (Beyene, 2008). The country has faced three major famines in the 1970s, 80s and 90s due to severe drought (Berhanu, 2001). Another factor widely discussed as main reason for food insecurity is land tenure system. Prior to the 1974 revolution, Ethiopia's land tenure systems were grounded in the empire, tribal groups continued to use land and pasture under indigenous arrangements (Bruce et al., 1994). The 1975 land reform nationalized all land. In an initial phase lasting until 1978, it had a land- to-the-tiller character and land was distributed to poor farmers, but between 1978 and 1990, it increasingly stressed villagization and collectivization of production (Bruce et al., 1994). Further political instability, war and policy failure were the major causes of food insecurity in the country (Berhanu, 2004; FDRE, 2002). Although several factors are the drivers of food insecurity in Ethiopia low levels of farm technology, lack of employment opportunities and population pressure play a great role (FDRE, 2003). Currently about 30% Ethiopians are food insecure and Ethiopia is one of severe food insecure countries.

Objective of this paper

This paper is aimed at presenting a synthesis of available literature to give an insight into the trends, challenges and prospects of food security in Ethiopia. It discusses the past and expected future trends in food security. It also clarifies the misconceptions and makes information available for wider users. This paper attempts to answer two questions: Has the food security situation improved or worsened in Ethiopia? And why does food insecurity persist in Ethiopia?

MATERIALS AND METHODS

The paper is prepared through extensive literature review of 66 literatures on global and the Ethiopian food security context. The paper used document analysis as its main method of data collection and analysis. Relevant facts, hypothesis and conclusions; on trends, challenges and prospects of food security were analyzed. The literatures used are on five main areas: (i) Causes and drivers of food insecurity; (ii) Policies, strategies and programs on food security; (iii) Food aid interventions; (iv) Concepts and guidelines of food security; (v) The state of food security (Table 1).

TRENDS OF FOOD INSECURITY

Global trends

All through human history, we see the frequent occurrence of famine dating back to 400 B.C. But, the reasons for famine during this era are mainly related to poor technology and economic progress (WER, 2008). The most famous famines in history happened in different parts of the world; in Ireland in 1845 due to devastating fungal potato disease known as late blight of potato; North Korea suffered a tremendous famine from 1994 to 1998 due to misguided leadership and flooding. Russia was affected by famine in 1921 due to residual impact of World War I where farmers sacrificed their food to soldiers; the Bengal famine of 1443 and1770 due to drought and crop failure; Soviet Union famine within 1932 to1933 due to collectivization of land; Chinese famine from 1932 to 1933 due to harvest failures (Fitzgerrald, 2013). In many cases historical famines are mainly caused by policy failure followed by natural disasters. More than 70 million people died in famines during 20th century (Devereux, 2000).

However, many of the chronically food insecure countries like Ireland, and china have combated the problem through committed governance and development of the agricultural sector. For instance, due to commitment of the government in research and extension advancement, potato diseases were removed and finally food self-sufficiency ensured in Ireland. The Green Revolution brought modern science to bear on a widening Asian food crisis in the 1960s. It contributed and solved the food problem and it contributed to a substantial reduction in poverty and the launching of broader economic growth in many Asian countries (IFPRI, 2009).

Table 2. Trends of food insecurity in the developing world.

Developing region	No of food insecure people (millions)	Share of total food insecure population (%)							
		1969-71	1990-92	2008-10	2012-14	1969-71	1990-92	2010	2012-14
East Asia	4	75	268	123	161	52	32	18	20
South Asia	2	38	255	200	276	26	30	29	34.3
Sub-Saharan Africa	1	03	215	264	214	11	26	39	26.6
Latin America and Caribbean	5	3	64	40	37	6	8	6	4.6
Middle East and North Africa	4	8	37	53	13	5	4	8	1.6
Total	9	17	839	680	701	100	100	100	87.1

Source: FAO (1996, 2014); Max (2015).

Today, the world has more than enough food to feed everyone. But, nearly, one billion people globally are food insecure (DFID, 2015; FAO, 2014; USDS, 2009). Almost all of the worlds (98%) undernourished live in developing countries. In Asia and the Pacific, an estimated 642 million people; in Sub-Saharan Africa 265 million; in Latin America and the Caribbean 53 million; in the Near East and North Africa 42 million; and in developed countries 15 million people in total are suffering from chronic hunger (FAO, 2012).

In spite of a registered decline of a hungry people by 38 million between 1990 and 1995, the situation took a sharp turn to worse. The number of hungry people has risen by 18 million over 1995 to 1 9 9 7 (GAC, 2004). In sub-Saharan Africa (SSA) the number of undernourished has increased with 41%, from 169 million around 1990 to 239 million in 2010 (Hilderink et al., 2012). This situation is expected to worsen, and the number of food insecure people is likely to increase, as changes in extreme weather events, will negatively affect crop and animal yields and agro ecosystem resilience (GAC, 2004). Table 2 shows the global trends of food insecurity from 1969 to 2010 and SSA is the only region where the number of hungry people is rising from 1967 to 2010; slightly declining between 2010 and 2014; but projected to worsen (FAO, 2006). In East Asia, the figure is declining, while fluctuating in Latin America.

Ethiopian trends

Historical facts

For the past 200 years, Ethiopian history is punctuated by famine and food related crises can be traced as far back as 250 BC. During the period between 1958 and 1977 over 25 million people were directly affected by famine and drought. The country has been affected by severe food insecurity for several decades (Beyene, 2008). The country has faced three major famines in 1970s, 80s and 90s due to severe drought that significantly affected the country's food production. It was estimated that close to 58 million people were affected by famine between 1973 and 1986 (Berhanu, 2001).

The drought in Northern Ethiopia started in the late 1960s with a number of years with below average rainfall, reduced harvests and led up to the severe drought of 1973 to 1974 (Webb and Van Braun, 1990). In spite of food shortage and hunger incidence, the government ignored the situation and sold a large amount of cereals in stock on the export market (ODI, 2004) and this leads to devastating situations.

Another factor widely discussed as main reason for food insecurity is land tenure system. Prior to the 1974 revolution, Ethiopia's land tenure systems were grounded in the empire, tribal groups continued to use land and pasture under indigenous arrangements (Bruce et al., 1994). The 1975 land reform nationalized all land. In an initial phase lasting until 1978, it had a land-to-the-tiller character and land was distributed to poor farmers, but between 1978 and 1990, it increasingly stressed villagization and collectivization of production. The land reform abolished large-scale and absentee landlordism and the exploitation of the peasantry by the landed classes. But repeated redistributions of land created insecurity, and the reform was accompanied by the imposition of state marketing quotas, villagization, cooperativization, and a heavy tax burden (Bruce et al., 1994; Lindstrom and Betemariam, 1999). The government is often criticized for neglecting its country, and spending too much on the civil war.

From 1974 to 1991, Ethiopia was wrecked by political instability, war, famine, and economic decline. Several incidences of famines were reported since then. The most recent tragic famines were experienced in 1984/85 which caused the death of over 1 million people (Lindstrom and Betemariam, 1999; Webb and Braun, 1994 cited in Abonesh, 2006). Since 1980 Ethiopia has been in a food deficit, requiring food imports either as aid or purchased (Berhanu, 2004). When the new government came to power about in 1991, 52% of the Ethiopia's population was food insecure and below the national food poverty line (FDRE, 2002).

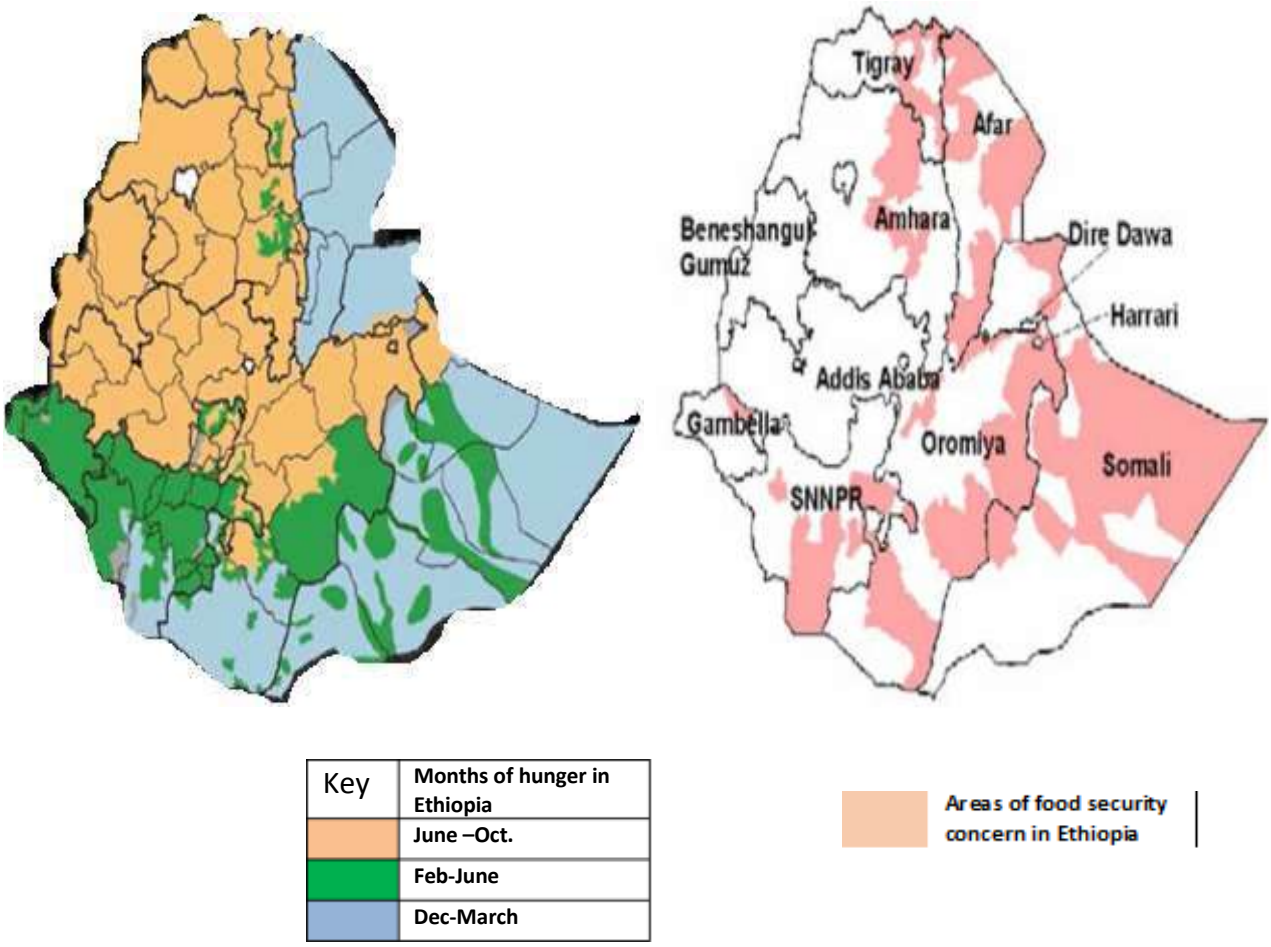

Figure 2. Areas and times of major food security in Ethiopia (Anderson et al., 2011).

Since 1998 the numbers of food aid beneficiaries in Ethiopia have fluctuated between 5 and 14 million every year (Devereux et al., 2006; UNHCR, 2010). In 1999/2000 another famine again was being reported by the world's media and the share of the draught affected population in Ethiopia rose from slightly over 8% in 1975 to 16% in 2003 (Berhanu, 2004). The famine of 2003 in Ethiopia was the worst famine since the mid-1980s. About one fifth of the population was affected and 13.2 million people survived on food aid. Every year an estimated 5 to 6 million people are considered chronically food insecure and between 2 and 7 million additional people have been deemed to be transitorily[2] food insecure.

Several factors are the drivers of food insecurity in Ethiopia including land degradation, limited household assets, low levels of farm technology, lack of employment opportunities and population pressure; adverse changes in climate, poor technology, and program implementation problems have resulted in serious and growing problems of food insecurity in Ethiopia (FDRE, 2003). Poor households are the most food insecure and they are highly prone to shocks. In many instances unemployed people, single-parent-headed households, elderly people living alone, and destitute and homeless people are food insecure in urban Ethiopia (Dermie et al., 2006).

As shown in Figure 2, areas of major food security concern continue to be the northern highlands, some parts of the south and east, and pastoralists in Afar and Somali Regions. In the chronically food insecure areas of central Southern Nations, Nationalities Peoples Regional States (SNNPR) the lowlands of Eastern Oromiya; southern and Central Tigray; Eastern Amhara Region; and the agro-pastoral low lands of Bale and Hararghe zones, severe food problems remain despite the ongoing food aid effort and improved rainfall conditions (FEWS NET, 2005). In spite of its persistence food shortage is severe in different regions of Ethiopia in different months of the year. On the other hand, majority of parts of Ethiopia experience food shortage during the months

[2] Transitory food insecurity is a short-term or temporary inability to meet minimum food consumption requirements, indicating a capacity to recover (WFP, 2009)

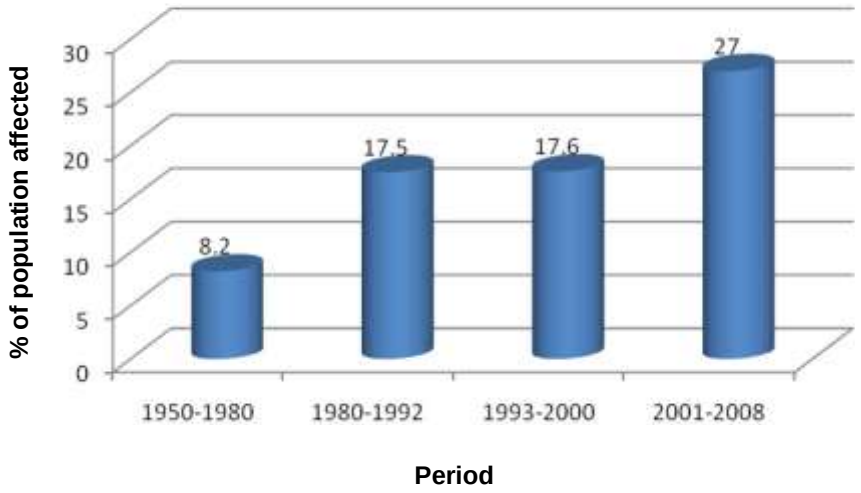

Figure 3. Trends of population affected (million) during major food crises in Ethiopia. Source: UNHCR (2010) and Coates et al. (2010) cited in McBriarty (2011).

Figure 4. Timeline of causes of food insecurity in Ethiopia. Source: FAO stat (2015b)

of June to October, while a significant number of areas also exposed to food shortage shocks during the months from February to June (Figure 2).

Figure 3 indicates the number of population affected during major food crises in Ethiopia. Historically the country is highly vulnerable to climatic hazards, particularly drought and floods. Each of the historical food crises are related to drought and absence of rainfall during the major growing seasons.

CAUSES AND CHALLENGES TO ACHIEVE FOOD SECURITY IN ETHIOPIA

During the socialist era (from 1974 to 1991) the state extracted produce of grains from the farmers under the quota regulation which requires farmers to sell certain quantity of their production to the state Agricultural Marketing Corporation for less than a market value.

Figure 4 summarizes the time line of causes of food insecurity and hunger in Ethiopia. One of the most important causes of famine and food insecurity is policy/governance failure (van Braun et al., 1993). Inadequate high-level political commitment and prioritization of the fight against hunger and malnutrition was the major challenges prior to 1990s.

There is no problem of underdevelopment that can be more serious than food insecurity (World Bank, 1986) that undermines people's health, productivity, and often their very survival (UNHCR, 2010). In the last decade, the country has experienced unprecedented economic growth. Nonetheless, food security remains a serious challenge. There is a question why one of the fastest growing countries in Africa remained to be one of the most food insecure countries. It has to be noted that economic growth is necessary but not sufficient to

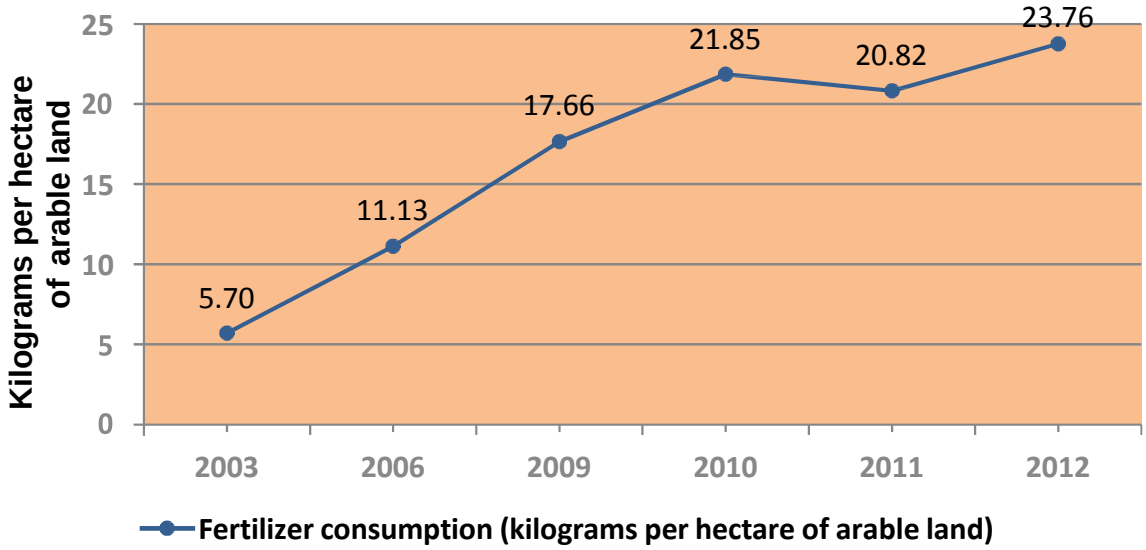

Figure 5. Fertilizer consumption in Ethiopia. Source: FAO stat (2015a) (from World Development Report, 2015).

accelerate reduction of hunger and malnutrition (FAO, 2012). That is why in spite of achieving a double digit Gross Domestic Product (GDP) growth and meeting MDG 1, poverty and food insecurity remain a big challenge in Ethiopia. Over 30% of the population is below the food poverty line, and nationally, 40% of households are food energy deficient (CSA, 2014). This part answers "why the country fails to end hunger despite all the acknowledged achievements?" and it highlights the major challenges hindering it to do so. In addition, it highlights the need to tackle these challenges in order to achieve food security in the coming decades.

Low use of farm technologies and weak innovation base

Food availability is a primary condition to food security. There is a consensus on that of the most critical drivers of food supply is the rate of growth of yields due to new science and technology. The major challenge to food security in Africa is its underdeveloped agricultural sector that is characterized by over-reliance on primary agriculture, low fertility soils; minimal use of external farm inputs, and environmental degradation (Mwaniki, 2006).

If we compare the rate of fertilizer use in sub- Saharan Africa with that of Asia; very little of the area under cultivation is fertilized. In Asia, fertilizer use has long been the norm (AHDR, 2012).For instance, fertilizer consumption in the SSA region averaged roughly 11 kg per hectare of arable land during 2006-08; while the world average was nearly 123 kg (Rosen and Shapouri, 2012). Crop yields in the Horn of Africa are among the lowest in the world (FAO, 2000). SSA agriculture including Ethiopia is characterized by non-mechanized, rain fed with little take-up of new technologies and innovations.

FAO expects that globally 90% (80% in developing countries) of the growth in crop production will come from intensification, in particular higher yields and increased cropping intensity (FAO, 2009). However, agricultural intensification and use of high yielder varieties are at infant stage. In Ethiopia, the production system is largely characterized by subsistence orientation, low levels of external inputs, dependency on rainfall, and limited integration into the market (Berhanu, 2006). For instance, in Ethiopia farmers have been using animal traction for plowing land if they are rich and own oxen; or hand plowing which is too traditional). Smallholder crop yields are below regional averages, the use of improved seeds, fertilizers, and pesticides remains limited; and only 6% of cultivated land is currently under irrigation. Maize production for instance in Ethiopia remains far below its potential due to the limited use of improved seeds, fertilizers and knowledge about best farming practices (Pavlovic, 2013).

Related to this is also limited technology uptake by farmers either due to lack of capacity (capital and skill) or less relevance of the technology available (e.g, only 25% of farmers able to purchase fertilizer, and improved seed; almost very few of smallholders' farmers able to purchase mechanized technology like tractor, combine harvester or more processing machines). For instance, Figure 5 shows the rate of fertilizer use has been increasing in Ethiopia. However, it is much less than the world average which was nearly 123 kg/ha in 2012 (Rosen and Shapouri, 2012).

A key challenge to reducing hunger and malnutrition is

ensuring that knowledge, technology and innovations that have been identified as effective reach those who need them. Translating research outputs into useful products and then ensuring that they reach those who need them is key (DFID, 2015). Innovation is also about getting existing technologies into use in more effective ways. Therefore, increased investment, and incentives are needed with regard to all enhancing smallholder access to agricultural technologies.

Climate related natural hazards: Drought

Food availability, access and stability are highly influenced by whether conditions like drought. Drought is the main natural hazard affecting Africa. It has been plagued by prolonged droughts followed by floods over the past 30 years (CAI, 2012). Large parts of the region are arid or semi-arid. The rainfall is low, unreliable and unevenly distributed and, although there have always been cycles of drought and flooding, there is evidence to suggest that the climate is becoming more unstable and the weather events more severe. In the Horn of Africa, about 42 droughts affected over 109 million people between 1980 and 2011. Over the last 10 years' period 47 million were affected by drought.

Drought remains the major natural hazard in Ethiopia. Since 1950, 12 major drought induced food security crises have occurred in the country. In Ethiopia drought is the most important shock that affects a large fraction of households every year and causes income and consumption shortfalls (IFPRI, 2013). There have been declines in rainfall between March and September from 1980 to the present (CSA, 2014). No doubt that heat increases and changes in normal rainfall patterns will cause drought, and flooding, and affect agricultural yields. For instance, a 10% decline in rain fall results in 4.4% falls in national production in Ethiopia (Webb et al., 1992 cited in van Braun et al., 1993).

Inadequate production and population growth

The main socio-economic factors that drive increasing food demand are population growth, increasing urbanization and rising incomes (FAO, 2009). Food availability at household and national level is determined by amount of production and size of people/ population. Population growth is often considered a prime cause of food shortage in the globe. Ensuring global food security will only become more challenging in the future as demand for food is projected to increase by 50% over the next 20 years (USDS, 2009). In Africa, between 1965 and 1990, agricultural production grew at an annual rate of 1.7%, while the population grew at an annual average of 2.8%. Food production has risen, but consumption has risen faster, largely because of population growth (AHDR, 2012). Providing adequate food for growing populations requires at least a comparable increase in food availability (Rosen and Shapouri, 2012).

Malthus argued, among other things, that populations tend to outstrip food supply because food supplies tend to grow arithmetically whereas populations tend to grow geometrically (APCSS, 1998). This is in line with Malthus' concept that a population growth is unilaterally dependent on its potential to produce food, which is a direct and inelastic function of the given natural resource endowment. With the rapid population growth of the past two decades, per capita food grain production has declined in Ethiopia (van Braun and Olofinbiyi, 2007). Most of Africa's famine prone countries have very high and even increasing population growth rates and rapidly growing labor forces (van Braun et al., 1993).

According to FAO (2000) during 1970 to 2000 per capita agricultural production (index) for Ethiopia has shown a steady decline; while population rises (McBriarty, 2011). It is also indicated in many food security documents food security problem will rise with growing population. The size of Ethiopian population was 40 million in 1984; it increased to 53.4 million in 1994 and further to 73.7 million in 2007. In 2012 the country's population size reached 84.2 million. In 2013 this population size has reached 85.89 (Figure 6) million as projected by the CSA (2014).

Market failure and alarming food prices

Food access is mainly determined by market situations. Market failure happens when free markets are "socially inefficient". A clear case of market failure emerges in situations where the costs society pays for a given activity are greater than the social benefits that activity brings (Rocha, 2006). It occurs when markets substantially and systematically fail to allocate resources to their most highly valued use (Rama and Harvey, 2009). This affects food supply chain and price.

Global agricultural commodity price increases were significant during 2004-06 (Maize prices rose 54%; wheat, 34%; soybean oil, 71 %; and sugar, 75%). Wheat prices have risen more than 35% since the 2006 harvest, while maize prices have increased nearly 28% (Rosen and Shapouri, 2008). In SSA, the alarming increase in food prices results from an increasing demand for food and the demand for fuel-crops, such as wheat, maize, sugarcane and oilseeds for the production of bio-fuels, bio-electricity, and bio-heat (Oritsejafor, 2010).

Poor households spend a high proportion (often over 80%) of their income on food and are therefore particularly vulnerable to adverse changes in the price of food. Rising food prices are likely to lead to higher poverty in Sub-Saharan Africa as the negative impact on

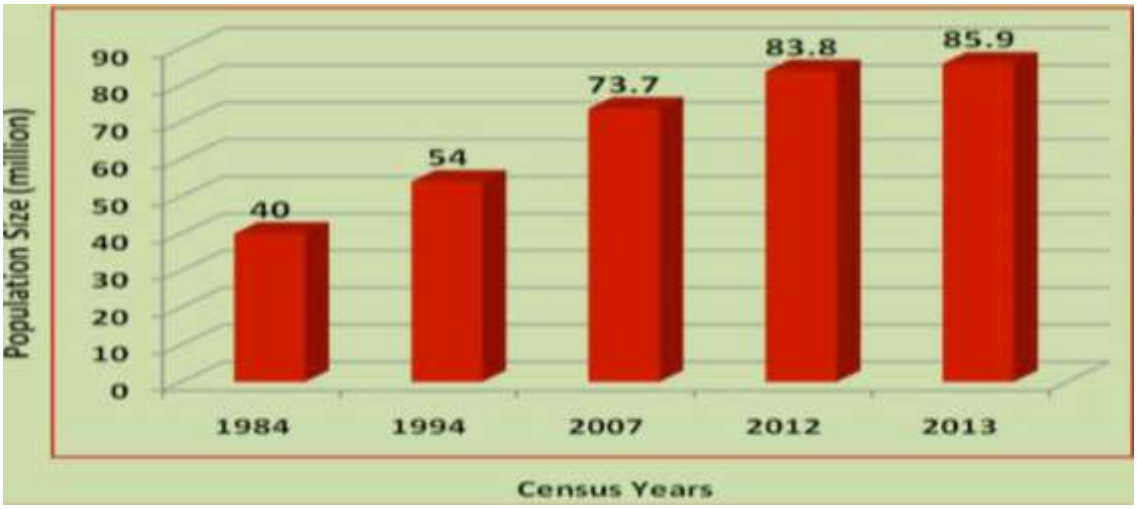

Figure 6. Trends of population growth in Ethiopia.

net consumers outweighs the benefits to producers. In Ethiopia the real problem is not problem of food availability, but food access and inability of the poor to afford food access.

In Ethiopia, food price increases are the most common shocks, experienced by 18% of households (CSA, 2014). Inaccessible production areas due to poor state of rural roads and incomplete regional roads lead to poor market access. Half of the Ethiopian population was found to spend less on food than is required for the consumption of the minimum level of calories (49.5%). Food and non-food prices have been on the rise since 2005. Between June 2007 and June 2008, the nominal price of maize shot up by an average of 202%, wheat by 83% and sorghum by 83%. Agricultural inputs are also more expensive, with the price of fertilizer doubling in a year. At the national level, the inflation rate steadily increased from a mere 3.4% in 2004 to 13.6 % in 2006 and rose further to 34.9 % by June 2008 (Ulimwengu et al., 2009). It was evidenced that the world oil price seems to play a major role in the food price hike in Ethiopia (AfDB, 2011). The government of Ethiopia has issued a 15% vat in food commodities for both domestic and international commodities. This increased the intensity of food insecurity.

Post-harvest loss and low nutritional literacy

Postharvest loss is collective food loss along the production chain, from harvest and handling, to storage and processing, to packing and transportation (Feed the future, 2013). In Africa, post-harvest losses of food grains are estimated at 25% of the total crop harvested. Certain crops such as fruits, vegetables and root crops are less hardy than grains, and post-harvest losses can be as high as 50% (Voices, 2006). In sub-Saharan Africa, the annual value of grain loss is estimated at $4 billion, enough to feed 48 million people for one year.

The magnitude of post-harvest loss in Ethiopia was tremendous ranging from 5 to 26% for different crops (Dereje, 2000; cited in Abebe and Bekele, 2006). This figure is quite large especially for Ethiopia where a great majority of people are food insecure. According to the African Postharvest Losses Information System (APHLIS) postharvest losses in 2012 for teff (the major food crop) were estimated at 12.3%, for sorghum at 11.6%, for wheat at 9.9% and for maize at 16.8%. Ethiopia's smallholders experience between 15 and 20 % post-harvest losses due to pest infestation and poor storage and handling (Pavlovic, 2013). U p to 50%, of the post-harvest loss in Ethiopia has been attributed to lack of adequate knowledge and implementation of sound grain storage management.

Many experts say that enough food exists to feed 10 billion people today. Unfortunately, it's not only inadequately distributed but also, to a large extent, wasted. "It is terrible that farmers put so much labor and water into growing crops, but then cannot sell them because they rot before getting to market. About 24% of all the calories produced for human consumption do not actually end up reaching human mouths (Knowledge@Wharton, 2015). This implies that globally 24% food energy is lost before being consumed by the needy people.

The food menu for majority of Ethiopians is cereal and bean based (Teff, Maize, beans). The general tendency to consume vegetables and fruits is low due to lack of stable supply of these food items throughout the year (poor shelf life) and affordability (expensive to buy). As a result, many of the essential vitamins and minerals are missing from daily consumptions of Ethiopians. The low

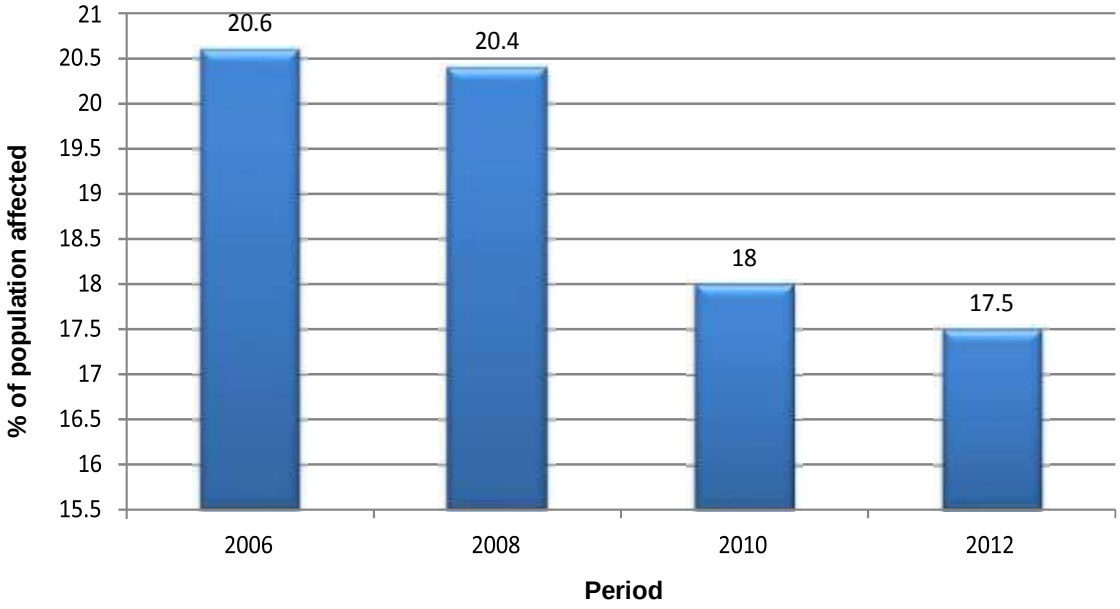

Figure 7. Ethiopian unemployment rate (CSA, 2014).

level of nutritional literacy leads people to eat just to fill the belly than balanced diet. It is likely to argue that in some rural areas people go hungry not necessarily due to lack of food, but due to lack of willingness to change their food habits. Typical examples can be consumption of Taro and Sweet potato in which most people consider these as crops of the poor and unwilling to use them. However, sweet potato is one of the essential crop to combat child malnutrition. Therefore, nutritional education is important to help people realize that there are several other alternatives to ensuring food security like consumption of inferior, very cheap, accessible but nutritionally useful foods.

Unemployment and low wage rates

The unemployment rate in Ethiopia and other countries is defined as the number of unemployed people as percentage of the active labor force.

Unemployment rate in Ethiopia was only slightly decreased to 17.40% in 2014 from 17.50% in 2012. Unemployment rate in Ethiopia averaged 20.26 % from 1999 until 2014, reaching an all-time high of 26.40 % in 1999 and a record low of 17.40% in 2014.

Unemployment rate in Ethiopia is reported by the Central Statistical Agency of Ethiopia (CSA, 2014). Ethiopia ranks 14th (45,650,000 people) in the world in terms of labor force rankings by 2013 estimation. During the same period the proportion of unemployed population was 17.5% (7,988,750). This figure is nearly equivalent to the number of chronically food insecure people in the country.

In terms of age composition, unemployment is essentially a youth phenomenon. Youth unemployment stood at 28.77% in urban areas, which is considerably higher than rural youth unemployment (4.08%). However, this masks the fact that in rural areas there is high level of underemployment, a phenomenon of not being fully employed or ineffectively employed (Martha, 2012).

Ethiopia accounts for the largest youth[3] population in Sub-Saharan Africa and the lack of employment opportunities for the youth is among the critical developing challenges facing the country. In rural areas (especially highland) youths are unemployed due to lack of factors of production mainly land. In urban areas it is due to the inability of the manufacturing and other service sectors to absorb the excess labor. Both the public and private sectors have a very limited labor absorbing capacity.

In Ethiopia, for example, agriculture's share of total employment was about 80%. Most of the poor in the country live in rural areas, so any growth in labor productivity has the potential to boost rural incomes, thus reducing poverty and food insecurity in the most vulnerable countries.

Generally, it is of paramount importance to reduce pressure on land by generating employment opportunities for rural youths. One possible option would be by enhancing Foreign Direct Investments and creating new employment opportunities so that the landless youths can generate adequate income to access foods. Figure 7 shows the trends of unemployment in Ethiopia has been declining. However, the rate at which unemployment

[3] Youth comprises persons aged 15-29, the rate of youth unemployment in urban areas is 23.7% in 2011.

declines is lower than that of population rates.

GOVERNMENT EFFORT TO COMBAT FOOD SECURITY

Political commitment

The current Ethiopian government is acknowledged for showing high political commitment for achieving food security through financial allocation to the sector. Much has been done to combat food insecurity. The government has favored liberalization of market in the 1990`s. However, a combination of many factors including weakly functioning agricultural markets, low purchasing power of the consumers, overall low level of technical knowledge of the producers, and a high illiteracy rate of the rural communities have hindered the much expected technical change and farm productivity (Berhanu, 2006).

To save life, for more than five decades, annual distributions of hundreds of thousands of metric tons of food aid have been channeled into safety net programs designed to alleviate the impact of food shortages in Ethiopia. Despite the massive size and duration of this effort, there remain many unanswered questions about its effectiveness and about its longer-term impact on the population it is designed to benefit (Clay et al., 1998).

The spending on poverty-targeted sectors (both recurrent and capital) steadily increased during this period rising from 42% of total expenditure in 2002/03 to over 64% and this has continued (FDRE, 2015). The government has also showed commitment in emergency responses. Ethiopia has been able to mitigate the impact of drought by deploying multi-year investments in safety nets and making significant advances in health and nutrition (CAI, 2012).

The Government of Ethiopia established the Agriculture Transformation Agency (ATA) by Federal Regulation in December 2010. The Ethiopian ATA seeks to promote transformation through enhanced support to existing structures of government, private-sector and other non-governmental partners to address structural bottlenecks in the system

Policy reform

In order to improve the food security situation of the country, successive national Food Security Strategies have been designed in 1996, 2002 and 2003/04. Following the recent famine of 2002/03, donors and the government have designed an ambitious national food security program called the New Collation for Food Security (FDRE, 2003).

Since 1992, the Government has been carrying out measures to reduce poverty in the context of a series of reform programmes in the political, economic and social spheres. In response to the reforms, the economy displayed marked levels of growth, reversing the previous two decades of poor economic performance (FDRE, 2003). The Federal Food Security Strategy rests on three pillars, which are: (1) Increase supply or availability of food; (2) Improve access/entitlement to food; (3) Strengthening emergency response capabilities.

Between 2005 and 2009, Government of Ethiopia and donors designed and engaged into a Food Security Programme (FSP), scaling up their level of intervention in the food security sector and incorporating and combining two main components: A large ‘Productive Safety Net Programme’ (PSNP) and a set of developmental interventions under the component "Other Food Security Programme" (OFSP).

The PSNP aimed to provide support to chronically food insecure families for several months either in the form of cash or food for up to five years, building their resilience and ability to withstand shocks. The families were then considered self-sufficient and would graduate from the program. This shift from the emergency system to a more predictable transfer system allowed, between 2005 and 2009, that more than seven million people have received PSNP transfers enabling them to meet consumption needs, reducing the risks they faced and providing them with alternative options to selling productive assets.

Over the last 10 years, Ethiopia has achieved an overall reduction in poverty levels as well as food insecurity. Nonetheless, poverty and food insecurity remain a big challenge. Over 30% of the population is below the food poverty line, unable to afford the minimum caloric intake for a healthy and active life. Chronic malnutrition is serious, with 44% of children under five years of age stunted and 10% affected by acute malnutrition (CSA, 2014). Nationally, 40% of households were food energy deficient, using the threshold of 2,550 kcal per adult equivalent per day.

Ethiopia has also made significant progress in reducing hunger, with a 39.24% reduction in the Global Hunger Index from 1990 to 2013. The percentage of the population below a minimum level of dietary energy consumption dropped dramatically from 74.8% in 1990 to 32% in 2015, although the total undernourished population remains high (31.6 million, down from 37.3 million in 1990) (Anderson et al., 2015).

The growth in agricultural output was largely attributed to improved productivity aided by favorable weather conditions and appropriate economic policies. The amount of land under cultivation increased steadily between 1996 and 2008, reaching 11.2 million hectares in 2009/10 (FDRE, 2015)

The following section presents the factors for the persistence of food insecurity in Ethiopia. With liberalization, the rolling back of the State has not yet

been replaced by an effective private sector. In addition, the focus of development aid from international donors has long been on the provision of emergency food aid; little aid is directed towards longer-term development (Ziegler, 2003). Food aid has saved lives, but it has not saved livelihoods.

PROSPECTS OF FOOD SECURITY IN ETHIOPIA: DOES THE NUMBER OF FOOD INSECURE INCREASE OR DECREASE?

There are two arguments concerning the prospect of food security in the world and Ethiopia. The first and optimistic view indicates that the number of food insecure and the problems of food insecurity has been declining and will decline. For instance, FAO (2013) put the evidence that since 1990 to 1992, the number of hungry people has fallen by over 200 million and built confidence hunger will be eradicated. This is encouraging for the future as it is showing that agriculture can be successful in Africa. Moreover, in terms of growth agriculture has performed relatively better (FAO, 2006).

Ethiopia is now widely considered to be one of a pack of "African tigers", with ambitious plans to become a middle-income country by 2025. It has successfully reduced the share of its population living in extreme poverty, as defined by the World Bank, from 55 % in 2000 to 29.6% in 2011, with the average food supply improving by 117 kcals per day during the same period (Khalid and Dan, 2014). The share of chronically malnourished or stunted children dropped from 58% in 2000 to 44% in 2011 according to the 2011 Demographic and Health Survey. Thus, the number of chronically food insecure population is expected to drop in the future. Ethiopia's development efforts are also praised internationally for meeting some of the millennium development goals, particularly universal primary education and a reduction in infant mortality. FAO recognizes Ethiopia "for decreasing" prevalent undernourishment "from 74.8% in 1990 to 1992 to 35% in 2012 to 2014". Over the same period, the number of undernourished people has decreased from 37.2 to 32.9 million, thus reaching the MDG-1 target. Sustained political commitment at the highest level, with food security and nutrition as top priorities, is a prerequisite for hunger eradication (FAO, 2014).

The fact that global population growth is diminishing, suggesting that policy changes or improvements at the local level could dramatically increase agricultural yields. Food security optimists also believe that technology and research can create abundant food supplies in the future (APCSS, 1998).

On the other hand the contrasting and pessimistic view states the future of food security will worsen. The future of global and Ethiopian food security will face serious challenges as has been discussed including, population growth, soaring food prices, climate change etc. These factors will worsen the current situation of food security.

Some experts are warning that the number of malnourished could rise substantially as global demographic pressures clash with such limits as diminishing arable land and growing water scarcity asserts that as the pressures of diminishing arable land and decreasing water supplies become more acute, food prices will likely rise. Given these demographic constraints, food security pessimists argue that there are essentially two ways to increase food production: Increasing yield per hectare or expanding the amount of land to be cultivated (APCSS, 1998). Land allocation for investors (e,g. for commercial farms like floriculture, rice etc. as happened so far) may compromise food security unless farmers received a comparably sufficient amount of compensation to run new business and ensure families food security. Similarly, competition in land use like land use shifts from food production into export commodities may also challenge the goal of ensuring food security.

Sub-Saharan Africa is projected to face an increase in the number of food-insecure people and the food distribution gap over the next decade (Rosen and Shapour, 2012). If we put Ethiopia as part of below average sub-Saharan countries, it would lead to pessimism to conclude that the number of food insecure people will increase.

This paper does not deny that Ethiopia is experiencing food shortages in the future. However, it argues that progress in economic growth and poverty reduction will improve access to food by many. It has to be noted that economic growth by no means is not a sufficient condition for food security. "Economic growth is necessary but not sufficient to accelerate reduction of hunger and malnutrition (FAO, 2012)

Conclusions

Almost all of the literatures reviewed indicate that Ethiopia is the top food insecure country from 1958 to 2003. The paper finds little literature on the strengths of the country with respect to food security during this period. However, the global and national efforts to combat the problem are promising. Thus, we can realistically expect food security to be improved for an increasing number of people if agricultural growth and employment generation sustained. However, the speed and extent it is improving is lower in comparison to those countries that combatted food security in a relatively short period of time. To improve the current situation of food security in Ethiopia, it is necessary to improve market functioning so that access to agricultural inputs and food will be improved through purchase of food at affordable price. Provision of incentives for increased production through strong support for farmers can make a

difference. The most important attention should be given in enhancing mechanization and use of improved inputs so as to improve efficiency of production. The government has been rewarding medals to model farmers every year. In addition to that, financial and input incentive for better performing farmers can bring significant change in boosting productivity per unit of land. Investment in science and technology; production and supply of seeds of High Yielding Varieties (HYVs) in order to augment production are necessary. Drought tolerant varieties can contribute towards higher food production in drought prone areas (over 60% land). In line, irrigation development can play indispensable role. Equally important is ensuring access to rural land for the unemployed youth, encouraging private companies to use labor intensive technologies; attracting domestic and foreign investors to labor-intensive technology industries (employ more youths). Reducing value added taxes on domestically produced foods will also play significant role in urban food security. Finally, this paper argues that the government should invest in food like it does in infrastructure so that the souring price will be stabilized; and food access by the poor will be ensured. Future research work should pay attention to present further evidences that compare similar countries with Ethiopia with respect to strategies to achieve food security as this paper does not address this issue.

CONFLICTS OF INTERESTS

The authors have not declared any conflict of interests.

REFERENCES

Abebe HG, Bekele H (2006). Farmers' Post-Harvest Grain Management Choices under Liquidity Constraints and Impending Risks: Implications for Achieving Food Security Objectives in Ethiopia. Conference Paper- Proceedings of the International Association of Agricultural Economists Conference. http://ageconsearch.umn.edu/bitstream/25716/1/pp060120.pdf

Abonesh T (2006). The impact of small-scale irrigation on household food security: The case of Filtino and Godino irrigation schemes in Ethiopia. Irrigation and Drainage Systems 22(2):145-158.

AfDB (African Development Bank) (2011). Inflation Dynamics in selected East African countries: Ethiopia, Kenya, Tanzania and Uganda.

AHDR (African Human Development Report) (2012). How Food Insecurity Persists amid Abundant Resources. Chapter 2: Towards a food secure future. http://www.afhdr.org/AfHDR/documents/chapter2.pdf

Anderson S, Elisabeth F (2015). USAID Office of Food for Peace Food Security Country Framework for Ethiopia FY 2016 – FY 2020. Washington, D.C.: Food Economy Group, 2015

APCSS (1998). Food Security and political stability in the Asia-Pasfic Region. Asia- Pasfic Center for Security Studies (APCSS); Honolulu, Hawaii.

Berhanu A (2004). The Food Security Role of Agriculture in Ethiopia eJADE 1(1):138-153. Available online at www.fao.org/es/esa/eJADE

Berhanu A (2006). Effective Aid for Small Farmers in Sub-Saharan Africa: Southern Civil Societies Perspectives. Ethiopian Case Study. Addis Ababa: Canadian Food Security Policy Group.

Berhanu G (2001). Food Insecurity in Ethiopia: The Impact of Socio-political Forces development research series research center on development and international relations (dir) working paper No. 102

Beyene T (2008). Measuring validity in Food grain prices and its impact on the Demand for fertilizer and improved seeds in Cereal production in Ethiopia. Ethiop. J. Agric. Econ. 7(1):1-29.

Blössner M, de Onis M (2005). Malnutrition: quantifying the health impact at national and local levels. Geneva, World Health Organization, 2005. Environmental Burden of Disease Series No. 12.

Bruce JW, Hoben A, Dessalegn R (1994). After the Derg: An assessment of rural land tenure issues in Ethiopia.

CAI (Consultancy Africa Intelligence) (2012). Food insecurity and malnutrition in Africa: Current trends, causes and consequences http://www.inonafrica.com/?option=com_content&view=article&i

Campbell C (1991). Food insecurity: a nutritional outcome or a predictor variable? Division of Nutritional Sciences, Cornell University, Ithaca, NY 14853-4410. The Journal of Nutrition [1991, 121(3):408-415]

Clay D, Daniel M, Debebe H (1998). Food aid targeting in Ethiopia: a study of household food insecurity and food aid distributions. Working paper 12 grain market research project ministry of economic development and cooperation Addis Ababa.

CSA (2014). Comprehensive Food Security and Vulnerability Analysis Ethiopia. UN World Food Programme and the Central Statistical Agency (CSA) of Ethiopia, Addis Abeba.

Dermie S, Getahun T, Bruce F (2006). Renewal Ethiopia Background Paper: HIV/AIDS, Food and Nutrition Security. The Regional Network on HIV/AIDS, Rural Livelihoods and Food Security (RENEWAL) International Food Policy Research Institute (IFPRI).

Devereux S (2000). Famine in the twentieth century. IDS working paper 105.

Devereux S, Sabates-Wheeler R, Mulugeta T, Hailemichael T (2006). Ethiopia's productive safety net programme (PSNP) Trends in PSNP Transfers within Targeted Households Final Report 10 August 2006.

Department for International Development (DFID) (2015). Government policy: hunger and malnutrition in developing countries Policy paper 2010 to 2015. https://www.gov.uk/government/publications/2010-to-2015

FAO (2000). The elimination of food insecurity in the Horn of Africa: A strategy for concerted government and UN agency action. http://www.fao.org/docrep/meeting/023/mb729e.pdf.

FAO (2006). Food security and agricultural development in sub-Saharan Africa: building a case for more public support. Policy brief No 1. http://www.oecd.org/tad/agricultural-policies/36784159.pdf.

FAO (2008). The state of food insecurity in the World, High food prices and food security – threats and opportunities

FAO (2009). How to feed the world population by 2050. High Level Expert Forum. Rome 12-13 October 2009. http://www.fao.org/fileadmin/templates/wsfs/docs/Issues_papers/HLEF2050_ Global_Agriculture.pdf

FAO (2012). The State of Food Insecurity in the World: Food and Agriculture Organization of the United Nations Rome, Italy.

FAO (2014). The state of food security in the world. http://www.fao.org/publications/sofi/2014/en/

FAO stat (2015a). The State of Food Insecurity in the World 2015 (The FAO Hunger Map 2015): Ethiopia's proportion of undernourished in total population 2014-16: 32.0% (31.6 million) September 2, 2015

FAO (Food and Agriculture Organization) (1996). Rome Declaration on World Food Security and World Food Summit Plan of Action, http://www.fao.org/DOCREP/003/W3613E/W3613E00.HTM

FAO stat (2015b). Ethiopia Land use and Agricultural inputs. http://ethiopia.opendataforafrica.org/howisde/ethiopia-fao-stat-land-use-and-agricultural-inputs

Federal Democratic Republic of Ethiopia (FDRE) (2002). Food Security Strategy, Addis Abeba, Government of Ethiopia.

Federal Democratic Republic of Ethiopia (FDRE) (2003). The New Coalition for Food Security in Ethiopia, Food Security Program. Addis Ababa, Ethiopia.

Federal Democratic Republic of Ethiopia (FDRE) (2015). Ethiopian

Economy: Ministry of Foreign Affairs home page accessed on March 3, 2015. http://www.mfa.gov.et/aboutethiopia.php?pg=3
Feed the future (2013). Combating Postharvest Loss in the Fight against global hunger. http://www.state.gov/e/eb/tpp/abt/postharvest/index.htm. Accessed March 11, 2015.
FEWS NET (Famine Early Warning Systems Network Ethiopia) (2005). Ethiopia food security update July 2005. www.fews.ne.
Fitzgerrald A (2013). Ten terrible famines in history. April, 2013. http://listverse.com/2013/04/10/10-terrible-famines-in-history/
GAC (2004). Food security Guidelines for the Promotion and Execution Concept Paper of Food Security Projects by German Agro Action Friedrich-Ebert-Str. Bonn.
Hilderink H, Brons J, Ordoñez J, Akinyoade A, Leliveld A, Lucas P, Kok M (2012), Food security in sub-Saharan Africa: An explorative study, The Hague/Bilthoven: PBL Netherlands Environmental Assessment Agency.
International Food Policy Research Institute (IFPRI) (2009). The Asian Green Revolution. International Food Policy Research Institute (IFPRI) Discussion paper series number 911, Washington Dc.
International Food Policy Research Institute (IFPRI) (2013). Evaluation of Ethiopia's food security program: documenting progress in the implementation of the productive safety nets programme and the household asset building programme ESSP II – EDRI report.
International Food Policy Research Institute (IFPRI), Concern, WHH (2010). Global Hunger Index: The challenge of hunger –Focus on the crises of child under nutrition.
Khalid B, Dan G (2014). The Ethiopian Approach to Food Security. How one African country is changing how we feed the world. http://www.ssireview.org/blog/entry/the_ethiopian_approach_to_food_security, accessed Jan, 12, 2015.
Knowledge@Wharton (2015). Feeding the Developing World: Six Major Challenges. Public policy global focus. http://knowledge.wharton.upenn.edu/article/feeding-the-developing-world-six-major-challenges/#
Lindstrom DP, Betemariam B (1999). The impact of war, famine, and economic decline on marital fertility in Ethiopia· demography, volume 36-number 2, May 1999.
Martha K (2012). Unemployment challenges in Ethiopia. Addis Ababa University, Ethiopia.
Max R (2015). 'Famines'. Published online at OurWorldInData.org. Retrieved from: http://ourworldindata.org/data/food-agriculture/famines/[OnlineResource]
McBriarty K (2011). Factors Contributing toward Chronic Food Insecurity among Women in Rural Ethiopia Northumbria University (UK).
Momagri (movement for a world agricultural organization) (2015). Food Security: A Timely Political Issue http://www.momagri.org/UK/focus-on-issues/Food-Security-A-Timely-Political-Issue_471.html.
Mwaniki A (2006). Achieving Food Security in Africa: Challenges and Issues. http://www.food-security.nl/resource/achieving-food-security-africa-challenges-and-issues.
Overseas Development Institute) (ODI) (2004). Hunger and poverty in Ethiopia: local perceptions of famine and famine response. http://odihpn.org/magazine/hunger-and-poverty-in-ethiopia-local-perceptions-of-famine-and-famine-response/
Oritsejafor E (2010). "Food Security in Sub-Saharan Africa: A Case Study," African Social Science Review: Vol. 4: Iss. 1, Article 4. Available at: http://digitalcommons.kennesaw.edu/assr/vol4/iss1/4.
Pavlovic A (2013). Smallholder Farmers Strive to Support Relief Efforts in Ethiopia. Frontlines, Feed the Future online edition, June, 2013. Accessed March 3, 2015. http://www.usaid.gov/news-information/frontlines/feed-future/smallholder-farmers-strive-support-relief-efforts-ethiopia.
Rama I, Harvey S (2009). Market failure and the role of government in the food supply chain: an economic framework. Economics and Policy Research Branch Policy and Strategy Group.
Rocha C (2006). Food Insecurity as Market Failure: A Contribution from Economics. School of Nutrition and Centre for Studies in Food Security Ryerson University Toronto, Ontario, Canada February 2006.
Rosen S, Shapouri S (2008). Rising Food Prices Intensify Food Insecurity in Developing Countries. Amber Waves 6:1.
Rosen S and Shapouri S (2012). Factors Affecting Food Production Growth in Sub-Saharan Africa. Amber Waves 10(3):1-7. http://ageconsearch.tind.io/record/145700/files/20Factors%20Affecting%20Food%20Production%20Growth%20in%20Sub-Saharan.pdf
Ulimwengu JM, Sindu W, Zelekawork P (2009). Impact of Soaring Food Price in Ethiopia: Does Location Matter. International Food Policy Research Institute. P 8. http://www.ifpri.org/publication/impact-soaring-food-price-ethiopia
UNHCR (2010). Food Security Information for Decision Making. Price Monitoring and Analysis Country Brief www.foodsec.org
United States Department of State (USDS) (2009). Global Hunger and Food Security Initiative: Consultation Document. http://www.state.gov/s/globalfoodsecurity/129952.htm.
van Braun J, Teklu T, Webb P (1993). Famine as the outcome of political production and market failures. IDS Bull. 24(4):73-79.
van Braun J, Olofinbiyi T (2007). Famine and Food Insecurity in Ethiopia: Case study #7-4 of the program: "food policy for developing countries: the role of government in the global food system" 2007.
Voices (2006). Increasing post-harvest success for smallholder farmers Developing Countries Farm Radio Network (Canada), 2006 Voices ISSN 1186-7841 November 2006, NO. 79 http://www.farmradio.org/wp-content/uploads/Voices_79.pdf. Accessed march 11, 2015.
Webb P, Van Braun J (1990). Drought and food shortages in Ethiopia. A preliminary review of effects and policy implications. IFPRI, Washington DC.
World Ecology Report (WER) (2008). Famine: Natural or manmade? WER 20:4
World Food Program (WFP) (2012). "What is Hunger?" Hunger. World Food Programme, 2012. Web. 16 Feb 2016.
World Food Program (WFP) (2009). Emergency Food Security Assessments (EFSAs). Technical Guidance Sheet no.5.)
World Bank (1986). Poverty and Hunger: Issues and Options for Food Security in Developing Countries. A World Bank Policy Study, Washington, D.C.
Ziegler J (2003). Economic, social and cultural rights: The right to food Report of the Special Rapporteur on the right to food Mission to Ethiopia Commission on human rights. Sixty-first session Item 10 of the provisional agenda.