Indira Gandhi National Open University
School of Continuing Education
Department of Rural Development

The Role of Smallholder Farmers in the Import Substitution and Industrialization of Ethiopia: *The Case of Malt Barley Producers in Arsi and Bale Areas, Ethiopia*

Submitted to: Indira Gandhi National Open University **(IGNOU)**
St. Mary's University (SMU), Addis Ababa, Ethiopia

By;

Tarekegn Garomsa
Enrolment No: 109100733
Tel: +251 913 289151
E-mail: taregarom@gmail.com

November, 2016
Addis Ababa, Ethiopia

Declaration

I hereby declare that the dissertation entitled " *The Role of Smallholder Farmers to the Import Substitution and Industrialization of Ethiopia: The Case of Malt Barley Producers in Arsi and Bale Areas, Ethiopia"***,** submitted by me for the partial fulfillment of MA degree in Rural Development to Indira Gandhi National Open University (IGNOU), New Delhi, is my own original work and has not been submitted earlier either to IGNOU or any other institutions for the fulfillment of any course of study. I also declare that no chapter of this manuscript in whole or part is lifted and incorporated in the Thesis from any earlier work done by me or others.

Place: Addis Ababa, Ethiopia
Date: November, 2016

Signature:

Name: Tarekegn Garomsa
Enrolment No: 109100733
Address: Tel: +251 - 913 289151
E-mail: taregarom@gmail.com

Certificate

This is to certify that Mr. Tarekegn Garomsa, Student of Master of Art in Rural Development from Indira Gandhi National Open University (IGNOU), New Delhi, has been working under my supervision and guidance for this project work. His project work entitled "*The Role of smallholder farmers in the Import Substitution and Industrialization of Ethiopia: The Case of Malt Barley Producers in Arsi and Bale Areas, Ethiopia"***,** which he is submitting, is genuine and original work.

Place: Addis Ababa, Ethiopia

Date: November, 2016

Signature:

Name: Mulugeta Taye (PhD, Associate Professor),

Address: Tel: +251- 911 345728

Email: mulutaye45@gmail.com

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Addis Ababa, Ethiopia

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Acronyms

AAU:	Addis Ababa University
ACOS:	Agricultural Commodity Supplies
AMF:	Assela Malt Factory
ATA:	Agricultural Transformation Agency
CBO:	Cooperative Bank of Oromia
CGI:	Clinton Global Initiative
CIF:	Cost, Insurance and Freight
CREATE:	Community Revenue Enhancement through Agricultural Technology & Extension
CSA:	Central Statistical Agency (of Ethiopia)
CSR:	Corporate Social Responsibility
DA:	Development Agent
ECX:	Ethiopian Commodity Exchange
EIAR:	Ethiopian Institute of Agricultural Research
ERCA:	Ethiopian Revenue and Customs Authority
EUCORD:	European Cooperatives for Rural Development
FAO:	Food and Agriculture Organization
FDI:	Foreign Direct Investment
FFARM:	Facilitating Farmers Access to Remunerative Market
FGD:	Focus Group Discussion
FOREX:	Foreign Exchange
GDP:	Growth Domestic Product
GMF:	Gondar Malt Factory
GTP:	Growth and Transformation Plan
HYSTRA:	Hybrid Strategies Consulting
IFAD:	International Fund for Agricultural Development
IFPRI:	The International Food Policy Research Institute
ILRI:	International Livestock Research Institute
ISSD:	Integrated Seed Sector
MFI:	Micro Finance Institution
NGO:	Non-Governmental Organization
OACC:	Oromia Agricultural Commercialization Cluster
OECD:	Organization for Economic Co-operation and Development
OSE:	Oromia Seed Enterprise
PASDEP:	Plan for Accelerated and Sustained Development to End Poverty
PPP:	Public – Private Partnership
SNNP:	Sothern Nations, Nationalities and People Region
SNV:	Netherland Development Organization
SPSS:	Statistical Package for Social Science
TFP:	Total Factor Productivity
UNCTAD:	The United Nations Conference on Trade and Development
USD:	United States Dollar

Abstract

The main objective of the study is to explore the roles of smallholder farmers in the import substitution and industrialization of Ethiopia. The assessment of the current status of the malt barley chain, key players in the chain, supports provided and supports required in the future, competitiveness of the Ethiopian malt barley and key bottlenecks and challenges of the malt barley.

Sample survey was conducted with 150 smallholders located in the three zones – Bale, Arsi and West Arsi using purposive sampling. Focus group discussions and key informant interviews were also held with Breweries, Maltsters, Bureau of agriculture, ATA/OACC, private organizations, MFIs and NGOs who are active in supporting the malt barley value chain in the study area. Hence, both quantitative and qualitative data was collected. Quantitative data was scrutinized, summarized, verified, edited and analyzed using latest Statistical Package for Social Science ((IBM SPSS Statistics Version 23).

The study disclosed that the new varieties introduced by HEINEKEN in collaboration with ATA and EIAR have revolutionized the malt barley sector in terms of enhancing productivity and quality of malt barley and enchanting the income of farmers. The study found out that the mean productivity per hectare for all malt barley varieties in the three zones is 39 quintals as opposed to 18.7 quintals per hectare in 2013 which is 109% increase. In 2016 purchase season AMF fully got its raw material supply locally and Gondar malt factory secured 30% of its supply. The study estimates that in the 2017 collection season, the expected production for the market is beyond the capacity of the local malting companies and hence need an urgent solution from the government to attract new Maltsters. The local malting capacity covers only 35% of the total national malt consumption during this study and the remaining 65% is import. Local malt barley is 15% more expensive than imported malt barley and local malt is 11% expensive than imported malt.

The study found out that almost 99% of the local malt barley is sourced from smallholders and still there is huge potential to use smallholder farmers to realize self-sufficiency and

even think of export after some years (Most probably 2021). The productivity and quality of barley sourced from smallholders is by far greater than that of the large farms that are engaged in malt barley production.

Malt barley became one of the key commercial commodities for farmers of the study area and the percentage malt barley sold to the market is increasing from year to year. In 201/16 marketing season, more than 87% of the malt barley produced by farmers was sold to Breweries and Maltsters. It was also found out that the new varieties (90%) are purely used for market instead of consuming it at home. Farmers put in place their own mechanisms of balancing producing for market and for consumption and they confirmed that producing malt barley for the industry do not affect their food security efforts.

Compared to the current situation, farmers are looking for the enhanced role of farmers' organization, private organizations and financial institutions in the malt barley value chain and the role of NGOs and government offices should be moderate. Improved seed, finance, pesticides/herbicides, extension support and market linkage are identified as key supports required to realize the self sufficiency of the country. Currently, the role of formal financial institutions in the malt barley is meager – only 4% of the respondents indicated that their source of credit is from formal financial institutions (MFIs). It was found out that irrespective of the contract they have about 58% of the respondents store their barley for more than 2 months. The reasons forwarded are it is saving mechanisms (sell when cash is needed), speculating/waiting for better price, wait the planting season to sell as seed with higher price and keep for food security/consumption until make sure that the next season looks ok. Hence, the companies pushing for strict delivery time hardly work in the study area. Contract enforcement is hardly available especially with individual farmers.

To build sustainable and competitive malt barley value chain, focus should be given to smallholders, enhance their production and productivity, modernize the marketing system and government need to incentivize breweries that are developing local barley chain and using local barley. Currently there is a competitive disadvantage for the breweries that are involved in local barley.

CHAPTER ONE

1. Introduction

1.1 About Ethiopia

With an area of 1.12 million square Kilometers (slightly less than twice the size of Texas), Ethiopia is located at 9.4969° N, 36.8961° E latitude and longitude respectively in the Horn of Africa on the continent's North East coast. Ethiopia borders six countries: Sudan, South Sudan, Kenya, Djibouti, Somalia and Eritrea. Addis Ababa, the capital city, is located in the middle of the country and the land contains a wide altitude range, from 100 meters below sea-level on the North Eastern border to more than 4,000 meters above sea-level in the country's mountain ranges. The differences in altitude of the country resulted in variable temperature conditions and a rainy season that spans the majority of the area between June and August. The land, however, is vulnerable to drought mostly in pastoral regions during other times of the year. The Abbai (Blue Nile) River, a tributary connected to the Nile River that flows in to Ethiopia and ends in Lake Tana is located North West of the capital city. Currently, the Ethiopian Government is building a Grand Ethiopian Renaissance Dam, set to be Africa's largest and most ambitious hydropower plant project.

The total population of Ethiopia is estimated at 96 million, with major ethnic groups including Oromo (34.4%) and Amhara (27%). About 17% of the total population lives in urban areas out of which over 3 million people live in the capital city of Addis Ababa. Interestingly, the country is comprised of a mostly young population, with a median age for both males and females of 17 years old. Afaan Oromoo and Amharic are the most commonly spoken languages. In regards to religion, approximately half of the country's population is Christian and one-third is Muslim.

One of the world's fastest growing, the Ethiopian economy is among the strongest in the Nile Region, with the majority of growth being from agricultural production. Coffee is an integral export crop in the region; however, seasonal droughts and substandard cultivation

methods threaten economic growth from agriculture. More recently, the government has prompted growth in the manufacturing, textiles and energy sectors to bolster the economy in addition to agriculture.

Ethiopia is the oldest independent country in Africa and one of the oldest in the world. What are believed to be the oldest remains of human ancestor ever found, which have been dated as being some five million years old, were discovered in the Awash Valley in Ethiopia. This beats the discovery of "Lucy", a 3.2 million years old skeleton, who was unearthed in the same area in 1974. With the majority of its political history being monarchical, Ethiopia has existed for over 2,000 years, dating back to the first century B.C. during its rule under the Aksumite Kingdom. After a series of power shifts throughout much of the 19th century, Emperor Menelik II took control and led the country through 1895 of Italian invasion. The Ethiopian army defeated the Italians, allowing the country to be recognized as an independent state. By 1930, leader Ras Tafari Makonnen, soon named Emperor Haile Selassie I, came to power and continued to rule the country until 1974, when he was overthrown during a military coup and overtaken by General Terefi Benti. In 1977, Terefi Benti was assassinated and replaced by Colonel Mengistu Haile Mariam, a Marxist dictator. In 1991 Mengistu was ousted by the Ethiopian People's Revolutionary Democratic Front which is still ruling the country.

Agriculture in Ethiopia is the foundation of the country's economy, accounting for half of gross domestic product (GDP), 83.9% of exports, and 80% of total employment. Ethiopia's agriculture is plagued by periodic drought, soil degradation caused by overgrazing, deforestation, high levels of taxation and poor infrastructure (making it difficult and expensive to get goods to market). Yet agriculture is the country's most promising resource. A potential exists for self-sufficiency in grains and for export development in livestock, grains, vegetables, and fruits. As many as 4.6 million people need food assistance annually. Many other economic activities depend on agriculture, including marketing, processing, and export of agricultural products. Production is overwhelmingly of a subsistence nature, and a large part of commodity exports are provided by the small

agricultural cash-crop sector. Principal crops include coffee, pulses, oilseeds, cereals, potatoes, sugarcane and vegetables.

Exports are almost entirely agricultural commodities, and coffee is the largest foreign exchange earner. Ethiopia's livestock population is believed to be the largest in Africa, and in 2006/2007 livestock accounted for 10.6% of Ethiopia's export income, with leather and leather products making up 7.5% and live animals 3.1%. Ethiopia has great agricultural potential because of its vast areas of fertile land, diverse climate, generally adequate rainfall, and large labor pool. Despite this potential, however, Ethiopian agriculture has remained underdeveloped. Because of drought, which has repeatedly affected the country since the early 1970s, a poor economic base (low productivity, weak infrastructure, and low level of technology), and overpopulation, the agricultural sector has performed poorly.

Most agricultural producers are subsistence farmers with smallholdings, often broken into several plots. Most of these farmers lived in the Ethiopian Highlands, mainly at elevations of 1,500 to 3,000 meters. According to the Central Statistical Agency (CSA), in 2008 the average Ethiopian farmer holds 1.2 hectares of land, with 55.13% of them holding less than 1.0 hectare. Currently, the Ethiopian Government set up the second phase of Growth and Transformation Plan (GTP) to reach certain goals between 2016 and 2020. Primarily, growth in the market should reach 8.1 percent per year during this time frame. This includes: bolstering smallholder farmers' productivity, enhancing marketing systems, upgrading participation of private sector, increasing volume of irrigated land and curtailing amount of households with inadequate food. In addition, it is hoped that the number of key crops are doubled from 18.1m metric to 39.5m metric tons. These programs should also result in Ethiopia getting to middle income status by 2025.

Several studies indicated that grains are the most important field crops and are the chief element in the diet of most Ethiopians. The principal grains are teff, wheat, barley, corn, sorghum, and millet. The first three are primarily cool-weather crops cultivated at altitudes generally above 1,500 meters. Teff, indigenous to Ethiopia, furnishes the flour for enjera, sourdough pancake-like bread that is the principal form in which grain is

consumed in the highlands and in urban centers throughout the country. Barley is grown mostly between 2,000 and 3,500 meters.

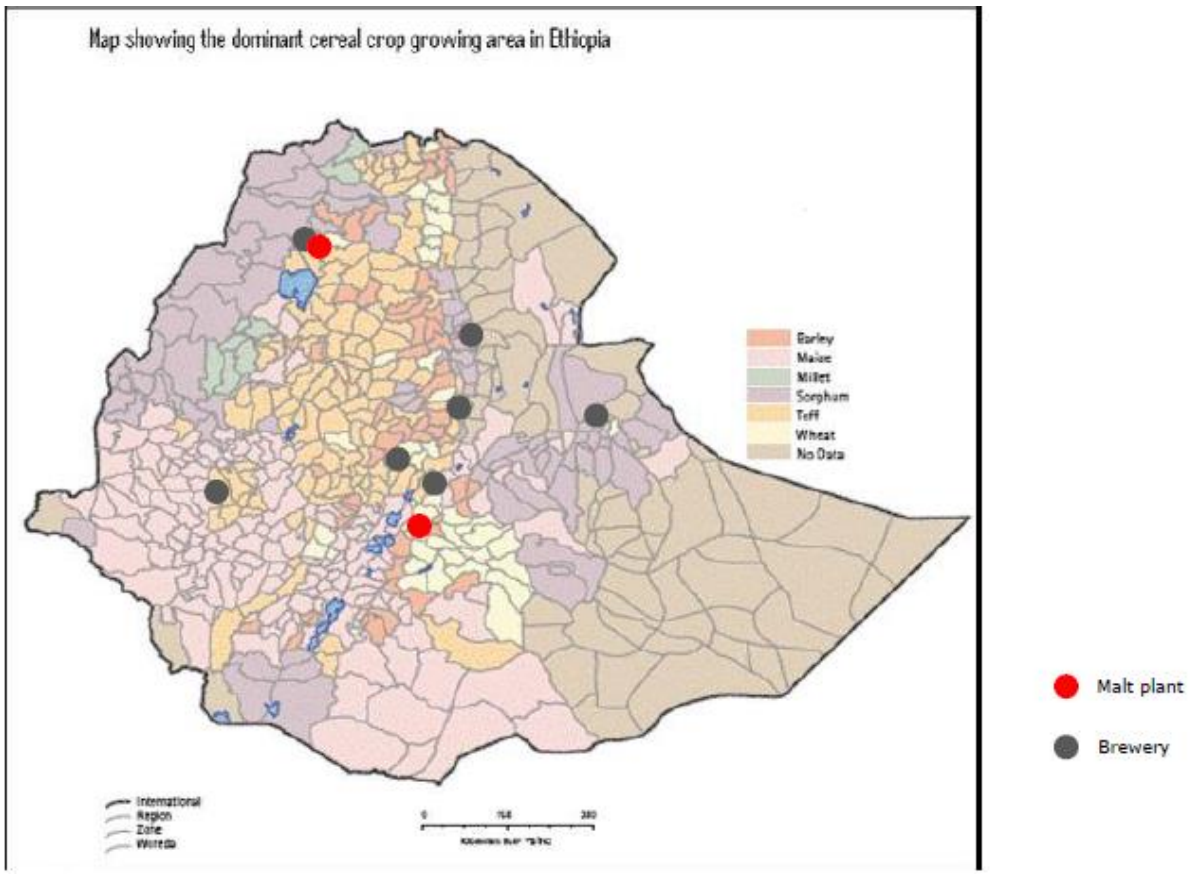
Almost all farming tools in Ethiopia are traditional and made of from different wood materials. These tools include sickle, pick axe, plough shaft, ploughshare, plow, beam and animal force as machines. More than 4.5 million smallholder farmers grow barley in Ethiopia with one of the lowest yields in the world. Getting new higher-yield varieties was a national priority and currently addressed by the collaboration between HEINEKEN, EIAR and ATA. As East African economies continue to grow, the demand for health food and malt beverages is increasing, expanding livelihood opportunities for Ethiopian farmers. Ethiopia is the largest producer of barley and faba bean in Sub-Saharan Africa and both crops are important for smallholder farmers.

Barley is important in terms of the lives and livelihood of small farmers. In the 2013/14 *meher* season, about 4.5 million smallholder farmers allocated more than 1 million hectares of land (12% of total cereal area) to barley cultivation. Corresponding barley production was about 2 million tons, equivalent to 10 percent of the total cereal production in the country (CSA, 2014). Although barley is not among the top cereal crops in Ethiopia, its importance is rapidly growing in terms of production, potential for poverty reduction, as well as for the country's coffers and the current balance of payment situation. Between 2003/04 and 2013/14, the number of smallholders growing barley increased from 3.5 million to 4.5 million; yields increased from 1.17 metric tons per hectare to 1.87 metric tons per hectare; and total production grew from 1.0 million tons in 2005 to about 1.9 million tons in 2014 (CSA, 2005; CSA, 2014). However, during those years Ethiopia produces mostly food barley, with its share estimated to be 90 percent (Alemu et al., 2014), and remains significantly deficient in malt barley. As a result, while the country has generated a surplus of food barley and has consistently exported a small amount, the net import bill for malt barley jumped from US$240 thousand in 1997 to US$40 million in 2014. If this trend continues, Ethiopia's malt barley import bill could be as high as US$420 million by 2025. Given the country's balance of payment situation in recent years, this is an alarming trend.

On the other hand, if farmers can cost effectively grow malt barley to meet the rapid growth in domestic demand, their livelihoods could be significantly improved.

There are two main reasons to be optimistic about the potential gains from an increase in production of malt barley. First, the industry has responded to growing demand by expanding their scale of operation. The government invited the world's largest breweries (like HEINEKEN and DIAGEO) which are already operating for the last couple of years. Second, there is now growing evidence that, with an increase in income, households are switching from domestically brewed beverages (e.g., Tella and Areki) to bottled beer. Since traditional beer is sorghum and other grain based, and the bottled beers are barley based, this has further accelerated the demand for malt barley.

Figure 1: Current landscape of malt Factories and Breweries in Ethiopia



1.2 Background of the Study

According to recent data, by the year 2050, the global population is expected to exceed 9 billion people. Beyond ensuring that everyone has strong and reliable access to education, employment, energy, and health care, feeding over 9 billion people within the next 35 years will require a 60 percent increase in global food production. According to 2013 research published in Nature Communications, industrial agriculture may be reaching the limits of food production; meanwhile, climate change will continue to have a negative impact on food production. Innovative solutions must be adopted to meet current and future demand for food around the world, while simultaneously balancing the health of global ecosystems with economic growth (CGI, 2016).

The greatest opportunity to meet this growing demand and in a sustainable manner, lies with the 500 million smallholder farms in Asia and Sub-Saharan Africa. These farms employ 2.5 billion people and collectively provide 80 percent of the food supply in those regions. Despite the volume of food they produce, smallholder farmers generally have low access to technology, limited resources in terms of capital, skills and risk management, depend on family labor for most activities, and have limited capacity in terms of storage, marketing, and processing. These constraints limit the ability of smallholders to achieve their full potential, but improved productivity can be unlocked by increasing smallholders' access to markets and resources through global value chains. Given that smallholders comprise over 30% of the world's population and the majority of the world's poor, local sourcing from smallholders provide a unique opportunity to make large-scale livelihood investments and support poverty alleviation (CGI, 2016).

Industrialization is a key to economic development and agriculture—supplying raw materials for processing and value addition—is an essential component of that process. Small-scale farming remains the dominant characteristic of agriculture in much of the developing world including Ethiopia. Existing evidence does not support those who believe that large-scale farming is associated with higher productivity. Most attempts to establish a systematic causal relationship between land size and productivity have led to inconclusive

results, thus making it difficult to derive generic policy implications. And yet, until recently, neither governments nor the international donor community recognized the significant role of smallholders to agricultural development, in particular, and to economic development in general. This was exacerbated by the poor quality of data on the number of smallholders, their contribution to total agricultural production and GDP, and their share in labor force participation (Smith, 2016).

Smallholders will continue to play a key role in the attainment of global food security objectives and local sourcing agenda of the developing countries. The latest estimates show that feeding a world population of 9 billion people in 2050 would require raising overall food production by some 70 per cent between 2005-2007 and 2050 (FAO, 2014). Production in developing countries would need to almost double. This implies significant increases in the production of several key commodities. Annual cereal production, for instance, would have to grow by almost one billion tons. The attainment of this objective should not be taken lightly, as the food crisis of 2008 reminded governments the world over.

Working with smallholder farmers also makes business sense. Contrary to the belief that dealing with such farmers is too costly, our case studies – ranging from large corporations to NGOs - prove that this can be a profitable endeavor. Among our case study examples, buyers of produce get 2-24% additional net margins. For instance, the Kenya Tea Development Agency, an organization that manages the tea value chain on behalf of over half a million smallholder farmers (or 60% of Kenya's tea production), works through cooperative factories. It makes business sense to work with and for smallholder farmers, to help them achieve higher incomes and often transform their lives in the process. But a balanced and stable relationship is essential to ensure both sides – the farmers and the organization working with them - grow and thrive (HYSTRA, 2015).

If we look at the case under study, the Ethiopian beer production and market has shown a tremendous transformation over the past years. The beer consumption has increased significantly over the last years and it is expected that this trend will continue in the upcoming years. To satisfy the increased beer consumption, big international breweries

invested in brewing capacity (HEINEKEN, BGI, Bavaria and DIAGEO) and as a result the demand for malt significantly exceeds the current production capacity of malt and malt barley in the country. All these increases have an implication in the role and contributions expected from smallholders who are dominantly producing malt barley in Ethiopia.

Ethiopia is currently not competitive in its malt barley and malt as compared to the imported malt barley and malt. Currently, it is cheaper to import from the world market than sourcing locally. This has to do among others with the large gap between yields in Ethiopia and Europe (Ethiopia 1.87mt/ha versus France 7 mt/ha on average), inefficiencies in the supply chain and high logistic costs.

1.3 Statement of the Problem

To meet the growing demand, world food production will need to increase by 50% by 2030. According to the World Bank, in emerging markets three out of four low-income people depend directly or indirectly on agriculture for their livelihoods. The right types of investments in agriculture are essential to food security and industrialization for a growing population (IFAD, 2010).

Though puzzling to many skeptics, a number of empirical studies reveal the existence of an inverse relationship between farm size and productivity. They show that ceteris paribus, smaller farms have higher yields than larger farms. This has been one of the most astonishing facts in development economics. Further to Chayanov's discovery of the existence of an inverse relationship between farm size and productivity among Russian farms (Chayanov, 2012), in what is generally considered as a seminal work on this topic, Sen (1962) noted that small Indian agricultural households were also much more productive than their larger counterparts.

In addition to contributing to food security, smallholders make rational economic choices, responding to incentives and contributing to economic growth and industrialization process of a country. Investing into the productivity of smallholder farmers can increase their

income significantly and durably, transform their lives and boost the revenues and profits of the businesses serving them and fuel up the industrialization process of a country.

Working on small farm productivity stands among the most exciting opportunities to increase the income and transform the lives of many of the 1.5 billion rural poor living off small farms. When buyers of produce or sellers of products and services work with smallholder farmers, the latter benefit in multiple ways: Farmers preserve the fertility of their land better by adopting more sustainable agricultural practices. They increase yield and quality of their production. And they enjoy better market access and higher prices, as well as get access to better quality inputs and equipment, often at a better price (ActionAid Report, 2013).

Food price volatility has had a dramatic impact on the food security of poor households in developing countries. Equally serious has been the impact of long-term trends such as a slowdown of agricultural productivity growth, urbanization and an increasingly sophisticated supply chain. These changes have led governments and development organizations to refocus on smallholder farming as a business activity linked to markets through efficient value chains (FAO, 2014).

The case of Ethiopia is also very similar with the above trends. According to the Ethiopian News Agency (2016), the mushrooming of the beer industries are expected to generate additional demand for malt. There are only two malt factories with a capacity of 52,000 tons of malt in the country catering for domestic beer industries, with substantial supplement from import.

In 2015, malt barley supply in Ethiopia met only 35% of the demand, with the remaining 65% (63,526 tons of malt) imported at a cost of $38 million. While malt barley production covers only about 150,000 ha, barley (for food and feed uses) is widely grown in the Ethiopian Highlands. In 2014-2015, some 4.1 million smallholder farmers cultivated barley over close to 1 million ha of land, producing 1,953,385 tons. The favorable agro ecology for barley in the highlands represents a huge opportunity to increase domestic malt barley

production and bridge the supply and demand gap. Modern business models, such as contract farming, warehouse receipt systems and private sector investment in post-harvest processing, could set up a brand new equation between malt factories, breweries and farmers – a scenario that could be game changing for the smallholder farmers, particularly in the high altitudes, where barley is one of the few crops that continue to yield well, being resilient to climate change.

According to information from ERCA, over the last seven years Ethiopia imported about 352,642 tons of malt barley, malt and related products which is valued at 324,138,009 USDs. Given the availability of favorable agro ecology, amble land and smallholder farmers, Ethiopia could have already substituted and saved millions of foreign currency every year. Only in the first 8 months of 2016, Ethiopia imported about 65,180 tons of malt barley. The national demand for malt is expected to grow to 211,139 tones (274,480 malt barley) by 2020. If the current trend continues and no additional malt factory is in place the national capacity shall cover only 25% of the national demand and the rest shall be imported in 2020. Given the fact that most of the malt barley is grown in the high lands and these areas are highly populated by smallholders, it is difficult to promote large farms rather than strengthening and collaboration with smallholder farmers.

It is obvious that the development of malting industry and malt barley production has not kept equivalent pace with the increase of beer production, resulting in a relatively strong increase of malt imports, using thereby scarce resources of foreign exchange. It is realized by the Government of Ethiopia and by all the stakeholders in the beer supply chain, that Ethiopia is one of the few countries in Africa that has the suitable natural conditions to produce malt barley efficiently even over time for export. It is feasible to develop a beer industry in Ethiopia that is based on self-sufficiency for inputs and thereby strongly reducing the use of scarce foreign exchange resources. Ethiopia is currently not competitive in its malt barley and malt compared to imported malt barley and malt. Currently it is by far cheaper to import from the world market than sourcing locally. This has to do with the large gap between yields in Ethiopia and Europe (Ethiopia 2mt/ha versus France 7 mt/ha), inefficiencies in the supply chain and high logistic costs.

Hence, undertaking an in-depth study on the current situation of malt barley production in Ethiopia, malting capacities, challenges, opportunities and the role/contribution of smallholders to import substitution agenda of Ethiopia is very essential. This study took the case of smallholder malt barley producers in Arsi and Bale areas of Ethiopia. This has vital contribution for the promotion and development of all inclusive, efficient, and transparent malt barley chain that can address the country's urgent demand of malt barley. Moreover, this has a huge impact for the country in terms of FOREX saving, bringing local development and the industries to shorten the value chain and shall have sustainable and dependable local supply of raw materials.

1.4 Research Questions

In light of achieving the objectives stated above, the research intends to answer the following questions:

- How smallholders' and their organizations' are positioned in relation to malt barley production in Ethiopia?
- Can smallholders be a real business partners for companies?
- How is the performance of smallholder farmers compared to large farms (Quality and quantity of produce)?
- Can smallholder farmers play a vital role in import substitution and industrialization agenda of Ethiopia?
- What is feasible for Ethiopia to achieve import substitution agenda? Active smallholder participation or promotion of large farms (which is often correlated related with land grabbing)?
- Is the Ethiopian malt barley sector competitive with the international market? If not, how can we address this?
- What role companies (Breweries and Maltsters) should play to sustain the Ethiopian malt barley sector?
- What are the factors that affect the performance of smallholders to compete with other players locally and internationally?

1.5 Objective of the Study

The general and specific objectives of the study are described as follows;

General Objective: The general objective of this study is to find out and analyze the role of smallholder farmers in the import substitution and industrialization of Ethiopia. The case of malt barley producers in Arsi, West Arsi and Bale zones are taken as an example.

Specific Objectives: The specific objectives of the study are;

- To identify the current roles of smallholder farmers and find out their role in the import substitution and industrialization agenda of Ethiopian and how to foster their role in the future for economic development of Ethiopia.
- To identify and analyze the key constraints, opportunities and proposed solution to for Ethiopian smallholders to be seen as a real business partners and supplier of raw material to the industry.

1.6 Significance of the Study

Import substitution and smallholder participation is now becoming a hot issue in Ethiopia. Increasing the skills and participation of smallholders has been given great attention in the Ethiopian Growth and Transformation Plans (GTP). Similarly, the rapidly changing economy and the mushrooming of the private sector especially the brewery sector, demanded business oriented farmers and surplus producers that can respond properly to various development endeavors of the country. Moreover the barley growing high lands of Ethiopia are populated with smallholder farmers and providing large land for private sector shall lead to eviction of millions of farmers. Hence, successful implementation of contract farming to ensure active participation of smallholders in the value chains and linkage with industries satisfy the country's development endeavors. For this reasons, assessing the role and contribution of smallholders in the import substitution and industrialization of the country may have the following importance.

- It may give feedback to the industries, policy makers and practitioners in the field to improve the position of smallholders in the realization of import substitution and industrialization of Ethiopia.
- It may give chance to other parties working in other commodities to share experiences and learn from the malt barley sector.
- It may create awareness to all stakeholders in the chain about the role of smallholders towards realization of import substitution and industrialization agenda of the country.
- It may also provide information to researchers and development planners to undertake further investigation on the role, opportunities and challenges of working with smallholders.

1.7 Scope of the Study

The study focused on identifying and analyzing the role of smallholder farmers in the import substitution and industrialization of Ethiopian's agenda. The study describes the current situation of smallholders, challenges and opportunities and future proposals to foster their capacity to be a reliable business partners and suppliers of raw materials to the industry. It clarifies whether the Ethiopian government needs to focus on large farms or develop the smallholders side by side. The study analyzes what is the future of smallholders in Ethiopia – merging their land or land grabbing or absorbs them into the industry or develops them to a real business partners in the growing economy.

The study captures the views of all relevant parties including smallholder farmers, their organizations (Cooperatives and Unions), support providers, industries, and policy makers. This analysis was done by taking the case of malt barley producers in Arsi, West Arsi and Bale Zones of Oromia National Regional State.

1.8 Limitation of the Study

There were certain constraints that challenged the study. Some of the respondents were not willing to respond to the questionnaires due to being attached with their regular field works and carelessness. There were also serious public protests in the area during data collection. Since contract farming and linkage of the smallholders with the industries is a recent experience in Ethiopian, there are few accesses to empirical evidence or locally produced documents related to the subject matter. Moreover, some farmers are hesitant to disclose some realities on the ground fearing that this might have implication of land taxes issues, land evictions, etc.

1.9 Organization of the Study

The study is organized and reported in five chapters. The first chapter gives introduction about statement of the problem, objectives and scope of the study. The second chapter deals with relevant literatures. This chapter also discuss about the status of malt barley chain in Ethiopia, Government directions related to import substitution especially malt barley and the role of chain supporters and enablers. Under chapter three, the research design and methodology employed for this particular research is discussed. The analysis and presentation of data are dealt in chapter four. The final chapter deals with the summary of major findings, conclusion and recommendations.

CHAPTER TWO

2. LITERATURE REVIEW

2.1 Conceptual Framework

2.1.1 Smallholder Farming

Smallholder farming has been defined in a variety of ways. According to the World Bank's Rural Development Strategy, smallholders are defined by their low asset base and operate on less than two hectares of cropland. Smallholder farmers are also defined as having limited resources in relation to other farmers in the agricultural sector. The various definitions agree that smallholders cultivate both food and non-food products – including field and tree crops as well as livestock, fish and sea products – with limited resources such as land, capital, skills and labor.

Lipton (2008) defines smallholder farms as "operated units in which most labor and enterprise come from the farm family, which puts much of its working time into farm". There is no clear out definition of small farms and smallholder farmers. The simplest and conventional meaning of a smallholder is the case when the land available for a farmer is very limited (Chamberlin, 2014; Hazell et al., 2007). Chamberlin has identified four themes on the basis of which smallholders can be differentiated from others. These themes include land holding size, wealth, market orientation, and level of vulnerability to risk. Accordingly, the smallholder is the one with limited land availability, poor-resource endowments, subsistence-oriented and highly vulnerable to risk. Nevertheless, the smallholder may or may not exhibit all these dimensions of smallness simultaneously.

2.1.2 Inclusive Business Models and Contract Farming

The term business model refers to the way an enterprise creates and captures value within a market network of producers, suppliers and consumers. In other words, it reflects 'what a

company does and how it makes money from doing it' (Vorley, 2008, as cited in Miller and Jones, 2010). The business model concept is linked to both the business strategy and business operations. What business model is most appropriate is depended on the specific circumstances and the commodity concerned (FAO, 2009).

It is currently argued that business models which give farmers an active role and leaving them in control of their land have the most potential to have a sustainable impact on local development. These types of business models are also referred to as inclusive business models. According to Vermeulen and Cotula (2010), business models are considered as more inclusive if they involve close working partnerships with local landholders and operators, and if they share value among the partners.

One type of inclusive business model which currently gains much renewed attention is contract farming. Contract farming is an important component of many current PPPs in developing countries and is considered a key business model in many of these PPP strategies launched under the G8's New Alliance (ActionAid Report, 2015). Contract farming is a form of vertical coordination within an agricultural commodity chain and is defined by the FAO as follows:

> *Contract farming refers to long-term supply agreements between farmers and agribusiness processing/marketing companies/buyers that bring mutual gains and normally include price and supply arrangements (date, quantity and quality). Contractual arrangements may be verbal or written and vary widely, depending on the countries, crops and companies concerned. Schemes usually entail a range of activities (services) that secure access to produce – as in-kind input supply or on credit – extension services, transport for produce, and credit guarantees (Paglietti and Sabrie, 2012, p. 1).*

To the extent whether contract farming is inclusive depends on how the model is structured. Contract farming can lead to new, reliable sources of income to farmers and can overcome imperfections in input and output markets by providing credit, seeds, machinery, human capital and market access to farmers, offering them a better position in the value chain. But

in practice, this so-called inclusive business model can also be exclusionary, as better-resourced farmers tend to capture the contracts, while poorer farmers work as labor on the contracted farms. In addition, without adequate competition among contracting firms, informed farmers and rule of law, contract farming may lead to economic serfdom for peasant farmers or a food system that only meets the economic objectives of powerful elites (Poulton et al. 2008, as cited in Vermeulen and Cotula, 2010).

Bijman (2008) indicated that not all the products are feasible for contract farming mechanisms and it works best under the following cases;

- ✓ High value products, whose quality highly depends on investments in terms of inputs and knowledge, and for which customers are willing to pay a premium.
- ✓ High perishable products, for which high coordination is needed for the harvest and delivery.
- ✓ Technical difficult products, for which specific inputs and skills are required for the production and depend on assistance by the buyers.

In general delivered products should be able to generate sufficient revenues to buyers to cover not only their inputs costs and provide a profit, but also to cover the costs of developing and maintaining an effective and healthy relationship with the growers. Most suitable products for contract farming with smallholders have the following characteristics:

- ✓ Limited market outlets
- ✓ Lower risk of side selling
- ✓ Products that needs a long gestation period and significant investments, such as product derived from tree crops
- ✓ Crops that attract a high premium for improved quality (such as coffee, vegetables, cocoa, tobacco, cotton).

Livestock, dairy and horticultural products, that can generate fast and constant revenues to smallholders, are also very important in contract farming with smallholders. On the other side high volume, low-value products such as staples and some root crops, and less

perishable crops are usually less suitable for contract farming since more prone to side selling, unless linked to processing to add value.

The principle actors in contract farming are the buyers and the growers. Buyers are leading the contracting process and invest significant resources. The type of buyers can influence the success rate. Buyers can be traders/collectors, wholesalers, retailers, processing companies or exporters. The attitude to work with smallholders depends on factors such as their relationships, the scale of action, their provenience and the existing legal frameworks. Bijman (2008) reports that the large fixed costs of contract farming are less attractive for traditional wholesalers or small-medium size collectors. It is however an option for large processors, exporters, or wholesalers that are preferred suppliers to supermarkets.

A proper pricing mechanism is crucial for success as well. The conditions for the final product purchasing are naturally very important, and misunderstandings and disputes frequently arise at the time of products delivery. A number of pricing mechanisms that include:

- ✓ Fixed prices agreed at the beginning of each cropping season;
- ✓ Flexible prices based on local/global markets and/or processing and other costs of the agro-business firm;
- ✓ Prices calculated on spot market values, adding a premium based on the product qualities;
- ✓ Split pricing, paying a fixed price before the cropping season and the second depending on the sales price realized by the agribusiness firm;
- ✓ Prices on consignment basis, where prices are calculated after the produce have been marketed and sold.

Usually buyers avoid fixing the price in advance. They prefer flexible mechanisms. Proper incentives can stimulate the farmers. Typical options are a minimum price and/or premium for high quality. Contract farming is important in modern agricultural and food industries of both the developed and developing countries. There is a tendency toward vertical coordination in agricultural value chains and strict quality standards and food safety rules

apply in food systems. Market competition, consumer demands, technology development, governmental policies, products traceability, corporate social responsibilities make agricultural systems increasingly organized into tightly aligned chains and networks, where the coordination among production, processing and distribution activities is closely managed (Bijman 2008, USAID 2012, Vorley 2008).

Dealing with smallholders is a challenge that exposes buyers to problems such as side selling, or to high transaction costs. On the other side they have their own conveniences in working with smallholders: reduced production costs using family labor and less direct supervision of their work; the risk of failure of product supply is reduced; they can easily adjust farming activities, they can ensure better yields and products quality.

Smallholders, from their side, have a strong interest to link to buyers. The main ones are: reduced market uncertainty; higher income and access to inputs, knowledge and services (Bijman 2008, USAID 2012). However buyers try to avoid links with individual farmers and opt for relationships with farmers' groups and organizations. Farmers' networks will reduce the costs associated with dispersion of producers, diseconomies of scale, poor access to information, technology and finance, inconsistent volume and quality, lack of traceability, and management of risk. Such groups can take on a range of roles including products bulking, quality control, access to services and market information, training on new technologies. Farmers' organisations on the other side, can improve the balance of power between producers and contractors, strengthening the incentives to continue bilateral activities (Vorley 2008, Technoserve and IFAD 2011).

Buyers can set up sourcing arrangements with existing Farmers' Organizations. Other options are to organize individual farmers into commercially-oriented groups, or work through "lead farmers", who act as intermediary agents developing their own sourcing arrangements with individual farmers (Technoserve and IFAD 2011). Vorley (2008) underlines the importance of small scale traders or farmers' traders who, through informal structures, play a critical role for smallholders' by connecting them to markets and as services providers. Working with existing farmer groups has its own risks, in particular

when groups are over-imposed. Risks include the farmer group's effective capacity to organize the production and mobilizing farmers; the reliability of Farmer Group leaders and management committee, that frequently do not emerge in a context of free choices or is a representation of certain groups, or that are periodically replaced (Wageningen UR et. al.).
Other actors play important roles in contract farming. Governments and their agencies, NGOs, micro-finance bodies frequently act as facilitators; generally they aim to reduce the investment costs and risks for the buyers and/or to empower the smallholders. They are helpful in the organizations of reliable producers groups or in the recovery of credits, when they have deep knowledge and strong relationships with the concerned communities. In many cases these 3rd actors are catalyzing contract farming processes, orienting buyers in investments, or facilitating the contract farming processes. In this case high risks are the establishment of mechanisms of assistance to investors and buyers, and in the medium/long term of dependence, instead of activate virtuous process based on market principles.

Eaton and Shepherd wrote a standard work on contract farming in 2001 and defined it *as an agreement between farmers and processing and/or marketing firms for the production and supply of agricultural products under forward agreements, frequently at predetermined prices*. They noted that contracts usually include all or some of the following elements: the provision by the contractor of inputs and/or technical assistance to growers; the warrant by the contractor to buy the products if these match agreed standards in terms of quantities, qualities and time of delivery; the agreement to ensure a basic price at the time of purchase.
Reasons for undertaking contract farming are multiple for buyers and growers. Both want to reduce overall market uncertainty and transaction costs (USAID 2012). For the buyers the priority is to secure reliable sources of raw materials that meet their specifications in terms of quality and volume at the least possible cost. For farmers this translates into obtaining access to assured markets, credit that is reasonably priced and adapted to their needs, and technical skills and innovations that will help them satisfy market requirements (Technoserve and IFAD, 2011).

Contract farming is often seen as a way to link smallholders to commercial markets, thereby addressing one of the major challenges in the transformation of agriculture in developing

countries. Some authors contest the benefit of contract farming. Proponents of contract farming often consider it as a win-win arrangement and an efficient mechanism for market failure and reaping mutual benefits.

Even though contract farming is a new phenomenon in Ethiopia there are many cases of contract farming between farmers and the industry/buyers which showed good progress and could be taken as an example. These are the local sourcing initiates of malt barley by HEINEKEN, DIAGEO and Dashen breweries; the case of chickpea between ACOS and Handhura Becho Union; the case of Solagrow and seed potato farmers; the case of organic sesame from Humera by Selet Hulling; the case of Ethio Flora buying green beans for export; the case of africaJUICE with passion fruit growing smallholders and the case of sugarcane plantation between Wonji-Shoa Sugar Factory and smallholders.

2.1.3 Foreign Direct Investment and Local Development

Foreign direct investment is defined by the OECD as ‘’cross-border investment by a resident entity in one economy with the objective of obtaining a lasting interest in an enterprise resident in another economy’’ (OECD, 2013). FDI can thus be seen as means for creating direct links between economies and, according to the OECD (2008), under the right policy environment it can serve as an important accelerator for local enterprise development, leading to an influx of foreign capital, employment creation and increased know-how, improving both the recipient (‘host’) and the investing (‘home’) economy (OECD, 2008).

Up until 2007, foreign agricultural investments were mainly initiated to reach an increased vertical (reduce production costs) or horizontal (seek new markets) integration. Since the global financial and food crises in 2007, an additional motive has evolved. Investing countries are now much driven by food security concerns and appear to be resource-seeking rather than market-seeking (Hallam, 2011). Hence, increased FDI inflows have especially been witnessed in resource rich African developing countries (Cotula et al, 2009). FDI inflows within African developing countries grew by nearly 80 per cent from 29 billion US dollars to 53 billion US dollar between 2005 and 2007 (Weissleder, 2009). East African

countries, in particular Ethiopia and Kenya, hzave been experiencing a large growth in FDI. In 2014, FDI flows to East Africa increased 11 per cent, up to 6.8 billion US dollars (UNCTAD, 2015). The strong rise in FDI has not only been due to the global crises. An expanding global commodities market, consumer demand, population growth, rising corporate profitability of investment, trade liberalization and an increasingly FDI-friendly environment are other reasons to explain this strong growth (Weissleder, 2009; Hallam, 2009).

According to Hallam (2011) and the FAO (2009), the main form of recent agricultural investments is land acquisition for food production. Although recent numbers on agricultural foreign investments could not be found, indicators such as the land matrix suggest that globally, land acquisitions involved almost 45 million hectare of land, comprising 1257 land deals up to 2016. The majority of land deals and hectares involved are found in Africa.

Large-scale investments can initiate increased productivity and employment, development of agricultural technology, and construction of rural infrastructure (New Agriculturalist, 2009). On the contrary, land deals may also lead to irreversible natural resource degradation caused by large-scale, harmful capital-intensive commercial farms, livelihood shortfall for smallholder-farmers, loss of indigenous farming practices, rising in-country food insecurity due to loss of subsistence farming land and the potential suffering from the natural resource curse (Abbink, 2011; Cotula et al, 2009; Fisseha, 2011; Robertsen and Anderson, 2010). Due to these possible negative effects, it is now argued that this form of foreign investment is the least likely to deliver significant developmental benefits to the host country (FAO 2009; Kugelman and Levenstein, 2013; Hallam, 2011). According to the FAO (2009), other forms of investment such as contract farming and outgrowers schemes can offer just as much security of supply. These forms of investment are based on different business models and hold a certain degree of inclusiveness. Inclusive business models tend to increase access to goods, services, and livelihood opportunities for low-income people and undertake targeted measures to integrate these people in the value chain by means of for instance trainings and extending credit. However, the concept of inclusive business often runs counter to established structures of maximizing profit and minimizing costs. Another

challenge involves poor understanding of the needs and wants of the low-income target group such as consumption patterns and informal competition (Rösler, Hollmann, Naguib, Oppermann and Rosendahl, 2013).

Clearly, following Hallam (2011), there is no one-sided answer whether FDI can have a positive impact on local development as much depends on how foreign investments are structured. The key issue is the extent to which benefits from foreign investments spill over into the domestic sector in a synergistic and catalytic relationship with existing smallholder production systems (FAO, 2009). Research conducted in 2014 by the FAO suggests that business models which give farmers an active role and leaving them in control of their land, have the most positive and long-lasting effects on local economic and social development (Liu, 2014).

2.2 Factors Limiting Smallholders' Market Participation

The need for promoting smallholders' market participation has been increasingly recognized in efforts to bring about the agricultural transformation in developing countries (Alene *et al* 2007). However, market participation of smallholder farmers could be affected by numerous factors. As mentioned by Alene *et al* (2007) subsistence agricultural producers, especially in Sub Saharan Africa, face several barriers that make it difficult for them to get access to markets and productive assets. As mentioned by Alene *et al* (2007), smallholders face a number of challenges in increasing agricultural yields and transitioning from subsistence to commercial farming. Faced with a lack of human capital and limited access to infrastructure, markets, and technologies, most smallholder farmers barely subsist. Access to financing, markets for their products, information about pricing and weather patterns is hard to come by, and national policies rarely support smallholders' interests. In recent years, the list of challenges has grown to include emerging climatic, health and financial risks that have the potential to drastically disrupt yields and income. These shocks compromise already fragile food-production systems and prevent smallholders from making the investments required to expand their incomes. As a result, smallholders' production is constrained and poverty persists. Alene *et al* (2007) indicated some of the key limiting factors as below;

i. *Access to Finance*: This includes finance for the purchase of inputs, outputs/working capital and insurances. One of the biggest – and largely unaddressed – challenges for smallholder farmers is access to finance. Lack of finance reduces the efficiency of agricultural production by preventing farmers from adopting better technologies. Smallholders are often perceived by financial institutions as too risky and often fall into the category of 'the missing middle', unable to obtain financing from either microfinance institutions or commercial banks. In addition to being simply too far away or too expensive, formal financial services are not aligned with the business strategies of small producers.

ii. *Inadequate infrastructure*: Rural infrastructure (Roads, warehouses, electricity, connectivity, transport, etc) plays a crucial role not only in ensuring access to markets, but also in having control over prices. The remoteness of farm villages and lack of adequate roads increases farmers' vulnerability. For example, in the Asia and Pacific region, the roads where most smallholder farmers operate are in poor condition and unevenly distributed; many villages lack roads connecting them to other villages. The main roads are often accessible only during the dry season. This isolation has significant implications for farmers' livelihoods, as farmers have difficulties getting their products to markets and obtaining agricultural inputs. In addition, farmers in remote areas generally have to pay higher prices for agricultural inputs, reducing their profits. For companies sourcing from and selling to smallholders, infrastructure is a major challenge since farms are often widely dispersed in remote areas; long transport times affect the quality of fresh products.

iii. *Access to market information*: For companies aiming to work with smallholders, accessing vital information on their markets presents major challenges. On the one hand, companies selling to smallholders do not know what kind of products and features smallholders demand, what they are willing to pay or how best to market their products. On the other hand, companies sourcing from smallholders do not know who offers what products, in what quantities and qualities, their prices or where they are located. Smallholders also face difficulties accessing up-to-date information on market prices for their products, weather forecasts, potential business partners, available inputs, modern production and marketing technologies, and

agricultural practices. In India for example, approximately 250 million people – the vast majority of whom live in rural areas – are engaged in agricultural production. Many of these farmers rely on other farmers or third parties to pass along advice about crops, but they do not have access to consistent, reliable sources of agricultural and pricing information. As a result, farmers produce lower crop yields and endure higher levels of crop wastage and spoilage. These farmers are also charged high transaction fees because they lack knowledge about current commodity prices.

iv. *Limited skills and awareness***:** Smallholders tend to practice subsistence agriculture in the way it was done for generations. In order to participate in larger value chains however, they must meet specific standards in terms of agricultural practices and management. In addition to lacking awareness of up-to-date cultivation and post-harvest management techniques, they often lack basic business skills such as accounting, cost-benefit analysis, cash-flow management and medium-term strategy development. In most cases, the skills and knowledge needed to meet these standards are not readily available. Most smallholders have little formal education (many complete just two to four years of schooling), and as a result, companies struggle with their smallholder business partners' lack of capacities. However, many companies lack the resources to provide the required training themselves.

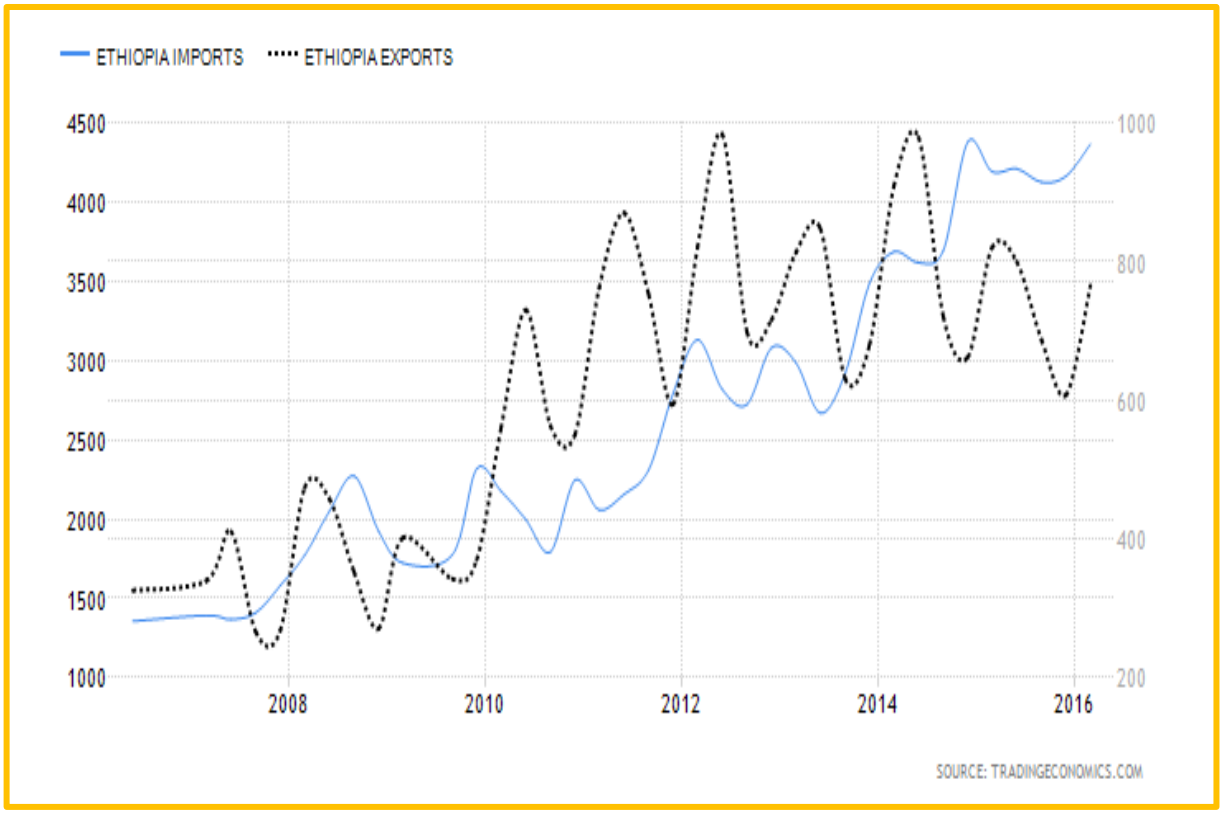
v. *Regulatory environment and gaps in legal infrastructure***:** Being a small producer or doing business with one often means working in an insecure market environment. Because markets in developing countries tend to be informal, business regulations are often inconsistent, administrative systems under-developed and the legal infrastructure weak. This often means that contract-enforcement support systems such as police and courts are out of reach. Contracts tend to be based on trust and subject to social enforcement. In addition, in most developing countries, there is little access to social safety nets or insurance coverage, which can absorb losses if harvests fail or prices are unexpectedly low. Less than 5 percent of people with low incomes have access to general insurance coverage, and even fewer to agriculture-related policies.

2.3 Import Substitution as a Strategy of Industrialization Policy

Ethiopia's foreign trade performance has been shown increasing trends both in value of exports and imports since the start of the Plan for Accelerated and Sustained Development to End Poverty (PASDEP) in 2004/05. According to the Annual Report of the National Bank of Ethiopia (2007/08), during the period 2004/05 to 2007/08, the value of the country's export ranged from USD 847.2 million to USD 1,465.8 million, while import varied from USD 3,633.2 to 6,810.7 million over the same period. As a result the trade deficit of the country over the period increased from USD 2,785.8 million to 5,345 million. The trade deficit thus appears to be the single most important cause for Ethiopia's current account deficit. Although the deficit has been partly offset by the increase in private transfers (Reaching USD 2.8 billion in 2007/08) as well as by the net service exports (USD 160 million in 2007/08) the account balance has consistently been negative over the past few years reaching USD 2.8 million in 2007/08.

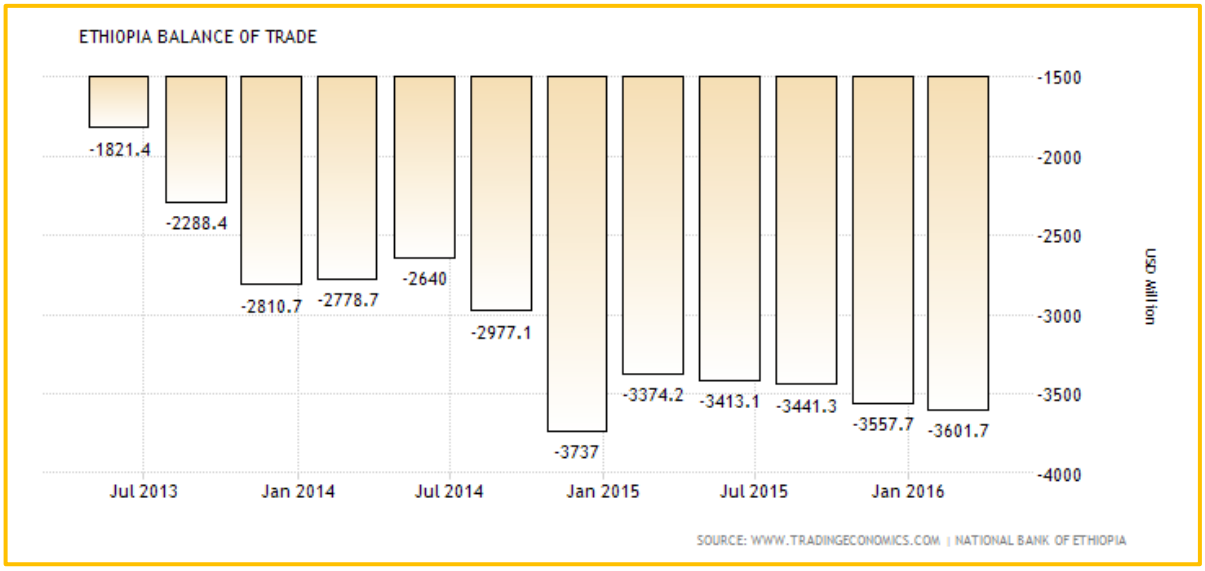
Currently, imports in Ethiopia increased to 4367.40 USD Million in the first quarter of 2016 from 4165.40 USD Million in the fourth quarter of 2015. Imports in Ethiopia averaged 2669.21 USD Million from 2006 until 2016, reaching an all-time high of 4382.60 USD Million in the fourth quarter of 2014 and a record low of 1355.50 USD Million in the second quarter of 2006. Ethiopia main imports are: foodstuffs, textile, machinery and fuel. Ethiopia main trading partners are: China (18 %), Saudi Arabia (13 %), United States (9 %), Russia and India.

Figure 2: Import and Export Trends of Ethiopia



Exports in Ethiopia increased to 765.70 USD Million in the first quarter of 2016 from 607.70 USD Million in the fourth quarter of 2015. Exports in Ethiopia averaged 616.50 USD Million from 2006 until 2016, reaching an all-time high of 984.20 USD Million in the second quarter of 2012 and a record low of 265.90 USD Million in the third quarter of 2007. Ethiopia main exports are gold (21%) and coffee (19 %). Others include: live animals, oilseeds, flowers and khat. Ethiopia main export partner is Switzerland (21%) mainly for export of gold. Others include: Somalia (11 %), China (8 %), Sudan (8 %) and Saudi Arabia (7 %).The ever expanding trade deficit depletes the country's scarce foreign exchange, forcing the country to implement strict foreign exchange control measures and procedures to avert the situation.

Figure 3: Ethiopian Balance of Trade



Ethiopia runs consistent trade deficits due to small production of exportable goods and logistic difficulties. Main exports are gold, coffee, live animals and oilseeds. Ethiopia is a net importer of fuel, foodstuffs and textile apparel. Main trading partners are China (18 percent of total imports and 8 percent of exports) and Saudi Arabia (13% of imports and 7% of exports).

Ethiopia recorded a Current Account deficit of 1960.90 USD Million in the fourth quarter of 2015. Current Account in Ethiopia averaged -733.27 USD Million from 2006 until 2015, reaching an all-time high of 2008.50 USD Million in the third quarter of 2014 and a record low of -2457.99 USD Million in the second quarter of 2015. Current Account is the sum of the balance of trade (exports minus imports of goods and services), net factor income (such as interest and dividends) and net transfer payments (such as foreign aid).

As a result of the fiscal policy measures, firms relying on imported inputs and capital goods have been negatively affected due to delays in importing essential materials or machinery and sometimes due to the impossibility of importing them altogether. Furthermore, the foreign exchange controls and procedures which have been established by the government in

response to the shortage caused additional costs and delays for all firms, including Ethiopian exporters in their dealing with foreign trade partners.

The trade deficit and its economic and social implications are a matter of concern to both the public and private sectors. Thus, it is important for both parties to work together on an in-depth review of the contents of import and export items. There is an urgent need to address the trade deficit not only on the income side (i.e. export), but also on the expenditure side (i.e. import) by identifying products that can be locally produced to reduce foreign exchange outflows/expenditure for imports. Similarly, additional possibilities for expanding the volume and range of export products need to be investigated in detail.

A study of the World Bank (2015) concluded that the approach that the country followed to revitalize industrial development has not yet worked. The study suggested that "the main issues holding back investment and productivity growth are to be found in the policies that constitute the investment climate." According to information obtained from the data base of the Ethiopian Investment Agency, a total of 7,816 projects were licensed during the period July 2005 to July 2010, of which only 3.6% of them (278 projects) were under implementation and 5% of them (390 projects) started operation. The remaining 91% of them are still under pre-implementation. The progress over the last five years appears to be lagging far behind in view of the time it takes to become operational after approval. At least those projects which were approved in 2005 - 2007, numbering about 3,318, should have started implementation and operation.

The government has initiated the Growth and Transformation Plan (GTP) to carry forward the important strategic directions pursued during the PASDEP period. The plan envisages, besides maintaining a fast growing economy, to achieve better results in all sectors. The role of the private sector in this context has been pinpointed to make greater contribution for the realization of the plan. The government pledged to make more effort to improve and increase the role of the private sector in the agriculture and industrial sectors of the economy. The participation of the private sector in horticulture and large scale farming development shall be encouraged through addressing the major constraints that dominantly

hinder development in the agricultural sector. The plan states that necessary arrangements shall be made to increase the private sector's participation in large scale farming by identifying potential areas for agricultural development.

Similar commitments have been pledged by the government to encourage private investment in medium and large scale manufacturing industries. Thus the government's five-year Growth and Transformation Plan is expected to address some of the inherent obstacles that hampered new investments from taking place at a fast rate.

There are two possible options for narrowing the prevailing trade deficit of the country. The first involves the transformation of the export of primary commodities into export of high value-added manufactured products through the development of proper upgrading strategies. The second option refers to the introduction of new import substituting commodities and increasing the production volume and the competitiveness of existing domestic manufacturing industries. In today's highly dynamic global market with reduced protection levels, competition is increasingly shaped by cost-competitiveness advantages.
There were and still are several instances where imported commodities become cheaper than their local counterparts. The domestic manufacturing industries most often complain about being uncompetitive due to importers tendency to under invoice commodities they import and poor quality of imported commodities. On the other hand, Ethiopian manufacturing industries are reported to suffer from low productivity, which contributes to their low competitive ability. A World Bank recent study (2015) shows that the overall *total factor productivity* (TFP), that is the efficiency with which resources are used in production, is lower for Ethiopian manufacturing industries than other sub-Saharan African countries. Thus, existing manufacturing industries need to give proper attention to low productivity factors and the government also apply strict legal measures and reforms to protect them from unfair trade practices if import substituting actions are to be effective.

Nearly all of the imported products, with the exception of heavy machinery and equipment can be produced locally. Quite a large number of manufacturing enterprises, which are expected to complement import, have been licensed during the past five years, though

manufacturing industries under operation remained deplorably low as can be seen in Table 6. During the period a total of 7,816 projects at a capital of Birr 236,835 million were licensed, of which only 278 are now under implementation while another 390 have become operational. Nearly 92% of the licensed projects are still under pre-implementation.

According to the Ethiopian News Agency (2016), the mushrooming of the beer industries are expected to generate additional demand for malt. There are only two malt factories with a capacity of 52,000 tons of malt in the country catering for domestic beer industries, with substantial supplement from import. In 2015, malt barley supply in Ethiopia met only 35% of the demand, with the remaining 65% (63,526 tons of malt) imported at a cost of $38 million. While malt barley production covers only about 150,000 ha, barley (for food and feed uses) is widely grown in the Ethiopian Highlands. In 2014-2015, some 4.1 million smallholder farmers cultivated barley over close to 1 million ha of land, producing 1,953,385 tons. The favorable agro ecology for barley in the Highlands represents a huge opportunity to increase domestic malt barley production and bridge the supply and demand gap. Modern business models, such as contract farming, warehouse receipt systems and private sector investment in post-harvest processing, could set up a brand new equation between malt factories, breweries and farmers – a scenario that could be game changing for the smallholder farmers, particularly in the high altitudes, where barley is one of the few crops that continue to yield well, being resilient to climate change.

Table 1: Import of Malt Barley and Malt (tons) and its Value (USD)

7 Years Import (2010 - 2016)				
Categories	**Net Wt. (t)**	**CIF Value (USD)**	**Total tax (USD)**	**Total Value (USD)**
Roasted Malt	138,437	84,565,450	34,532,969	119,098,419
Malt not Roasted	195,799	132,656,830	52,416,393	185,073,222
Other Malt Extracts	5,144	8,998,491	4,239,895	13,238,386
Raw Barley	13,262	6,408,586	319,396	6,727,981
Total	**352,642**	**232,629,357**	**91,508,652**	**324,138,009**

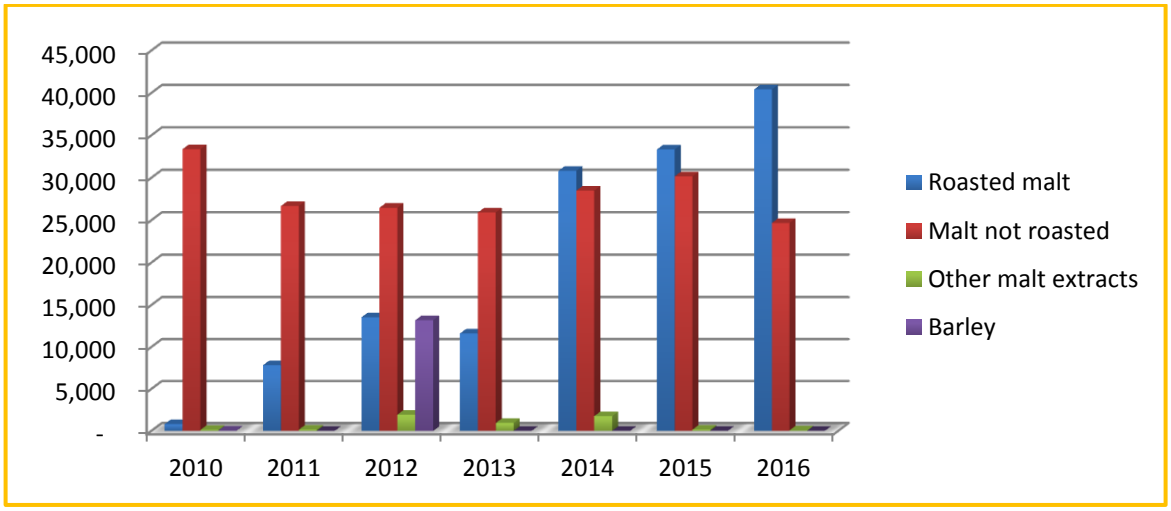
Source: Ethiopian Revenue and Customs Authority and own estimate and calculation

Given the availability of favorable agro ecology, amble land and smallholder farmers, Ethiopia could have already substituted and saved millions of foreign currency every year. Of courses there are many bottlenecks in the malt barley chain which needs to be solved to attain this target. Some of them are high cost of local barley, limited malting capacity, side selling and government involvement in barely base price fixing and limited capacity of the unions and coops in output marketing.

Table 2: Ethiopian 2016 (8 Months) Import of Malt Barley and Malt

Countries of Origin	**Import (t)**	**%**
Belgium	9,767	15.0%
China	23	0.01%
Denmark	13,724	21.1%
Egypt	2,228	3.4%
France	13,330	20.5%
Germany	10,455	16.0%
Netherlands	12,597	19.3%
Oman	50	0.1%
Portugal	2,598	4.0%
Ukraine	408	0.6%
United States	1.3	0.01%
Total	**65,180**	**100%**

Figure 4: Ethiopian Yearly Malt Barley and Malt Import over the Last Seven Years



Source: Ethiopian Revenue and Customs Authority and own estimate and calculation

Table 3: Imports of Malt and Malt Barley over the Last 7 Years

Items	Imports (t) over the last 7 Years							Total
	2010	2011	2012	2013	2014	2015	2016	
Roasted Malt	806	7,844	13,554	11,625	30,832	33,344	40,431	**138,437**
Malt not Roasted	33,376	26,678	26,471	25,917	28,495	30,182	24,681	**195,799**
Other Malt Extracts	124	155	1,933	949	1,761	154	68	**5,144**
Raw Barley	41	7	13,200	13	1	-	-	**13,262**
Total	**34,347**	**34,685**	**55,158**	**38,503**	**61,089**	**63,680**	**65,180**	**352,642**

Source: Ethiopian Revenue and Customs Authority and own estimate and calculation

Thus, the market for malt, which is made mainly from malt barley, is readily available and signals the existence of ample opportunity for the expansion of local production for potential investors or to expand the existing malt factory.

The biophysical situation of the country is also excellent for production of barley in general and it is the fifth most important crop in the cereal crops of the country (CSA, 2014/15). For many years, barley had been produced for local consumption only until in the early 1990s when the Assela Malt Factory was established to locally process malt and supply to the then limited brewery factories. Since then, malt barley varieties were identified, researched and improved in order to enhance the production and productivity of the varieties. According to CSA 2014/15, the total annual production of barley in the country in 2014/15 is estimated at 1.95 million tons. This information is given in gross for all varieties of barley. However, Delelegne A. Tefera et al (2016) indicated that out of the total barley production of the country in 2015, 10-15% is estimated to be malt barley.

Rabo Bank study (2016) indicated that given the suitable ecological condition to grow malt barley, 25% reduction in barley price (which seems feasible if current barley programs are further intensified, leading to higher yields) in combination with the investment of a minimum of two foreign malting companies could significantly reduce the current malt price (even assuming a reasonable profit margin for the Maltsters) to below USD 700/mt which is clearly lower than the current price of malt imported from Europe. Reduction of the barley price is imperative to make local malt production competitive let alone competitive for

exports. In this respect, a factor that can slow down the reduction of the malt price is the general consumption growth of cereals in Ethiopia e.g. linked to increased meat consumption. The Government has therefore a big role to play in increasing the productivity of malting barley. It is true that until now breweries have led the intensification of the agricultural sector by support programs, introduction of improved seed, etc. However, without structural support of the Government it is unlikely that the required increase of barley production will be achieved. The following interventions are required from the government of Ethiopia:

- Land pooling of smallholders
- Emerging farmers/model farmers engagement
- Introduce barley that can grow in the low land or winter
- Further improve the malt barley seed varieties
- Enhance mechanization of smallholders
- Improve storage and warehouse
- Improve extension services
- Put in place contract enforcement mechanisms
- Improve access to finance

2.4 Mechanisms for Increasing Domestic Production of Imported Goods

According to Samuel (2011), almost all existing manufacturing establishments operating in Ethiopia are producing goods that could substitute or supplement imported goods. In fact when a new manufacturing investment takes place, its products will eventually end up competing with its import counterpart. These manufacturing establishments always strive to increase their production as long as their products are marketable. However, their chance of staying in the market depends on two factors.

The first factor that determines their survival is their competitive strength both in terms of product quality and cost of production. Some recent studies of the World Bank concluded that the overall aggregate total factor productivity in the Ethiopian manufacturing industries is lower than it is in other developing countries. This is one proximate cause of lack of competitiveness of Ethiopian manufacturers in both product quality and cost of production.

Manufacturing establishments that are competing with imports thus need to improve their productivity.

Secondly, the idea of import substitution refers to a trade and economic policy based on the premise that a developing country should attempt to substitute products which it imports with locally produced substitutes. This often involves government subsidies and high tariff barriers and non-tariff barriers to protect local industries. Import substitution can also be taken as a policy strategy, e.g. as an attempt to utilize underused capacities, reduce regional unemployment or protect infant industries. This form of economic protectionism has helped some countries to industrialize in the past, (such as South Korea and Taiwan) but many studies suggest that these steps can no longer be applicable in a globally linked market economy and are destined to bring economic risks, most notably potential economic inefficiencies, uneconomical use of available resources, and ultimately lead to higher prices.

The economic policy of the country is in favor of free trade and market-oriented development. The promotion of import substituting manufacturing industries through the application of economic protectionism does not appear to be a proper mechanism to be considered in the country. As mentioned earlier existing manufacturers are still engaged in the production of imported goods and new manufacturers are coming up with projects having import substituting character. Most new investments in the manufacturing sector serve the market with products substitutable with imported ones. The objective here should be to encourage domestic industries to increase their volume of production to bring meaningful impacts on the trade balance of the country. Some options that seek the attention of the government could be suggested to promote import substitution without applying economic protection in its strict sense. Brief highlights and descriptions of the options to be considered in this respect are provided as follows:

i. Revising Tariff Structures

There are instances where the same import tariffs are applied on some imported finished products and imported raw material which is used to produce the finished products. For

instance, in the textile manufacturing sub-sector, garment manufacturers that depend on imported fabrics to produce garment are charged the same import tariff as the garment importer. Levying similar import tariff discourages the domestic garment manufacturers' effort to substitute import since they will not be able to compete with the imported garment. Furthermore the government did not take into account the wastage that result in the fabric during the garment making process.

The Ethiopian government has accorded high priority to the development of the textile, leather, chemical industrial sectors etc., in its five year GTP. By further revising the tariff structure that is currently being adopted potential investors will be encouraged to produce products locally and help to narrow the ever expanding trade balance of the country.

ii. Abolishing Under Invoicing and Illegal Trade Practices

It is generally known that under invoicing of imported products leads to unfair trade practices. Domestic manufacturers are forced to sell their products at a loss when under invoiced imported products flood the market. Although smuggling/contraband trade is reported to be declining, there are several incidences of contraband trade. The government should strengthen its law enforcement capacity to minimize the risk potential investors are facing in their effort to operate legally.

iii. Encouraging FDI to Invest in Import Substitution

With the development of economic globalization, foreign direct investment (FDI) is increasingly being recognized as an important factor in the economic development of countries. Its recognition resulted from several factors, particularly the more receptive attitude of a country to investment inflows, the process of privatization, and the growing interdependence of the world economy. FDI can become operational in two basic ways. The first is what economists call a green-field investment, which involves the establishment of a wholly new operation in a foreign country. The second involves acquiring or merging with an existing firm in the foreign country. Thus, foreign firms investing in a country in either way are either engaged in a market expansion whereby they promote the same industry in

the host country as they operate in their home country or invest in an industry abroad that provides inputs for their domestic production process or produce finished goods in the host country or export it to international market.

The most important factor that attracts foreign firm to invest in a developing country is the presence of a stable political environment and a relatively open free market. Accordingly developing countries in general strive to create a favorable and enabling climate to attract FDI, which brings capital, facilitates the transfer of technology, organizational and managerial practices and skills as well as access to international markets. In view of the advantage to be gained in this regard, Ethiopia formulated an investment policy that is capable of attracting FDI. The country also promulgated and enforced a package of incentives to attract FDI. As a result many foreign firms have been licensed to invest in major sectors of the economy since the government made some outstanding development reforms in the economy of the country.

However, the progress appears to be slow in comparison to FDI inflows in some African countries. For instance, according to reports from UNCTAD, countries like Madagascar, Zambia, Ghana, Democratic Republic of Congo, Namibia, Tanzania, Chad and Burkina Faso managed to attract FDI in the range of USD 0.5 billion to 0.9 billion in 2007, while Ethiopia in the range of USD 0.2 billion to 0.4 billion (UNCTAD 2010). Ethiopia must learn from the experiences of best performers in Africa.

National investors most often fail to be cost effective and as a result they have weak competitive position compared to imported products. The flow of FDI on the other hand would bring in a spirit of learning by doing among the Ethiopian workers and entrepreneurs and facilitates easy transfer of technology and skill. Therefore, the government should give more priority to FDIs coming from those countries where much of the imports of this country originate from for the following reasons:

- They often use labor intensive technology – this is one of the comparative advantages the country has;

- They have already created an established market for their products and would easily monitor the market for product improvement and development; and
- They are in a better position to know how the market operates and the package of incentive schemes the country offers.

iv. Improving Quality Management and Standard

According to some domestic manufacturers some imported manufactured products, mainly from some Far East countries, do not seem to meet some acceptable standards and fail to serve the purpose they are intended for. This resulted in unnecessary wastage of consumers' scarce resource and created unfair competition practice in the market. They are taking advantage of the low purchasing power of the population and as a result these products are sold at prices much lower than the price quoted at a reasonable margin by domestic producers. That means domestic industries producing same products have difficulty in securing markets for their products and this discourages potential investors from taking rational decision to invest.

Thus the government should develop some mechanisms to protect domestic industries from this kind of unfair invasion of the market with cheap and poor quality products not serving their intended purposes. One possible action to be taken by government, generally on all imported products, is to inspect randomly the quality of the product against a set of accepted standards at check points and forbid the goods from entering the market if they fail to qualify. This requires highly skilled personnel, modern laboratory and other testing facilities and accordingly the government should take a firm stand on this issue and create institutions for implementation.

2.5 Smallholders' Commercialization – Challenges and Opportunities

Commercializing smallholder agriculture is an indispensable pathway towards economic growth and development for most developing countries relying on the agricultural sector (von Braun 1995; Pingali and Rosegrant 1995; Timmer 1997). In the long-run, subsistence

agriculture may not be a viable activity to ensure sustainable household food security and welfare (Pingali 1997). The welfare gains from market-oriented production arise from specialization that builds on and creates comparative advantages, potential for large-scale production, and from dynamic technological, organizational and institutional change effects that arise through the flow of ideas due to exchange based interactions (Romer 1993, 1994).

Smallholder commercialization also typically leads to an increased diversity of marketed commodities at a national level and increased specialization at regional and farm levels (Pingali and Rosegrant 1995; Timmer 1997; Kurosaki 2003). Moreover, commercialization has a linking power between input and output sides of a market. Demand for modern technologies promotes the input side of production and facilitates the development and advancement of technological innovations. In turn, the use of modern technologies can result in higher productivity and production entering markets.

Agricultural commercialization usually takes a long transformation process from subsistence to semi-commercial and then to a fully commercialized agriculture (Pingali and Rosegrant 1995). In subsistence production, the farmer's objective is food self-sufficiency by using mainly non-traded and household generated inputs. The objective and the input sources change in semi-commercial farms into generating surplus agricultural outputs and using both traded and non-traded farm inputs. In a fully commercialized agriculture, however, inputs are predominantly obtained from markets and profit maximization becomes the farm household's driving objective (Pingali and Rosegrant 1995).1

Although the net welfare gain from agricultural commercialization at the household level is universally accepted, there is no common standard for measuring the degree of household commercialization. Some literature has considered a dichotomy between food and cash crops and examined the household resource allocation decisions to these crops as a proxy to the level of a smallholder commercialization (de Janvry et al. 1991; Fafchamps 1992). Others use different types of ratios such as marketed outputs or inputs to the total value of agricultural production or total household income (von Braun et al. 1994; Strasberg et al. 1999). In the dichotomy between food and cash crops, food crops are assumed to be used

only for home consumption whereas households are considered as net sellers in the cash crop output markets and net buyers in the input markets for cash crops. However, some studies reveal that these situations are far from reality as food crops are also marketed and households could also take any position in their food crop output market participation (Gebremedhin et al. 2007; Pender and Alemu 2007). Therefore, the level of surplus production available for marketing and the household, location, and commodity specific transaction costs are often more important than the crop type in determining the position of a household in the output markets.

Moreover, to what extent agricultural production is commercialized at a household level is subject to risk and household's attitude towards risk (Fafchamps 1992; Dercon 1996). The more risky the marketing environment a household is engaged in (high variation in market prices and strong correlation between marketed commodity prices and household income) the less a household will be involved in agricultural practices that support market orientation (Fafchamps 1992; von Braun et al. 1994). Works of Finkelshtain and Chalfant (1991) and Fafchamps (1992) also clearly showed that a household's decision to commercialize depends on the sum of consumption and income effects of market shocks.

The concept of agricultural commercialization can be complex, and has contributed to varying definitions and emphases given in the literature. According to Pingali (1997), agricultural commercialization is more than marketing agricultural outputs. Pingali argued that agricultural commercialization is attained when household product choice and input use decisions are made based on the principles of profit maximization. Moreover, according to von Braun et al. (1994), commercialization implies increased market transactions to capture the benefits from specialization. Increased market transactions are more easily attained when there are favorable policies and institutional arrangements that promote open domestic and international trade environment and the development of market infrastructure and support services that facilitate access to existing markets and the opening up of new market opportunities under a secured legal system.

There is largely a consensus that commercialization has differential impacts on different socioeconomic groups (wealthy and poor, land owners and landless farm households, women, and children) under different socio-economic, institutional and policy environments, although the net impacts are not necessarily or universally positive. However, there are only a few, if any, who contend the need for commercialization to promote social development and economic growth.

In a broad sense, smallholder commercialization could be seen as the strength of the linkage between farm households and markets at a given point in time. This household-to-market linkage could relate to output or input markets either in selling, buying or both. Alternatively, smallholder commercialization could also be seen as a dynamic process: at what speed the proportion of outputs sold and inputs purchased are changing over time at household level.

The role of risk in a smallholder commercialization process can be seen from two perspectives: before and after shifting from subsistence to semi-commercial production system. First, perceived risks in labor and food markets compel subsistence farmers to stick to the self-sufficiency objectives both in their production and consumption decisions. Second, unreliable and costly food markets and fluctuations in market prices put the relatively market-oriented resource allocation decisions of semi-subsistence households at stake due to less reliability of food markets to guarantee household food security (von Braun et al. 1994; Govereh et al. 1999).

Agricultural commercialization leads to a more specialized pattern of production at a household level (Timmer 1997). A specialized production by its nature is highly susceptible to the risks of fluctuating prices and yields which results in fluctuating household income. To continue the commercialization process under unforeseen income shocks, either credit markets have to be easily accessible or semi-commercial households have to put some of their good-year income in a form of quasi-liquid assets for consumption smoothing in a bad year. To mitigate risks related to smallholder commercialization and keep households in the move towards a fully commercialized agriculture, Timmer (1997) stressed that governments

have to play a crucial role in designing and implementing the necessary policy measures that could help smallholders in designing their own risk-management and risk-sharing strategies.

Agricultural commercialization tends to generate more household income due to its comparative advantages over subsistence production (Kennedy and Cogill 1987; Dorsey 1999). However, unless rural markets are well-integrated and risks are low to influence household decision behavior, the shift from subsistence to commercial crop production may have an adverse consequence by exposing households to volatile food market prices and food insecurity. This subsection discusses the welfare effects of smallholder commercialization in relation to income and employment dimensions (first-order effects) and also the indirect effects on nutrition and health aspects (second order effects) through the income-consumption linkage.

When smallholders commercialize, developing countries with large population shares in the agricultural sector can generate more income, thus economic growth. Increased income in the agricultural sector raises demand for manufactured goods and services in the other sectors of the economy, thus stimulating further growth. Moreover, possible linkage of smallholder commercialization to the export market could enhance foreign currency earnings and improve the balance of payments. Commercialization may also increase employment, especially when labor demanding high-value commodities are targeted.

Smallholder commercialization demands not only well functioning output markets to sell marketable commodities, but also efficient and low-cost factor markets that reflect the true opportunity cost of farm inputs. In some cases, smallholders may not be able to obtain purchased farm inputs like seeds, fertilizer and other chemicals due to shortage of liquidity or higher transaction costs associated with these input markets. Moreover, they may not be able to have access to output markets due to similar or other problems. Under such circumstances, different institutional arrangements are considered to solve or at least mitigate these problems and promote smallholder market participation, contributing to higher farm household income. One such category of institutional arrangements involves interlinked markets, also known as interlocked transactions.

Interlocked transaction is an institutional arrangement meant to reduce transaction costs through tying agricultural credit and input supply to the delivery of product at harvest (Govereh et al. 1999). In other words, interlocked transactions tie input transactions with output marketing. Such an arrangement has a double advantage in agricultural commercialization. First, small-scale farmers could get agricultural inputs like seed, fertilizer and other chemicals on credit basis, which is a means to overcome farm household cash constraints. Secondly, farmers are ensured of the marketability of their produce, sometimes even directly at farm-gate (Jayne et al. 2004). Experience from Kenya reveals that there is a direct and indirect positive impact of interlinked cash-cropping schemes on the intensification of input use in food-crop production. Smallholders engaged in interlocked credit/input/output marketing arrangements for cash crops used more fertilizer per acre both on cash crop and food crop production in Kenya (Jayne et al. 2004). However, Govereh et al. (1999) raised the concern of diversionary sales (side-marketing outputs) to other buyers as a major problem in such arrangements. According to Govereh et al. (1999), unlike the perishable and industrially processed high-value cash crops, food crops potentially suffer from this disadvantage as staple food crops can be processed and stored on the farm for longer periods.

There are a number of determinants in commercializing smallholder agriculture. These determinants are broadly categorized as external and internal factors. The external ones are factors beyond the smallholder's control like population growth and demographic change, technological change and introduction of new commodities, development of infrastructure and market institutions, development of the non-farm sector and the broader economy, rising labor opportunity costs, macroeconomic, trade and sectoral policies affecting prices and other driving forces (von Braun et al. 1991; Pingali and Rosegrant 1995). In addition, development of input and output markets, institutions like property rights and land tenure, market regulations, cultural and social factors affecting consumption preferences, production and market opportunities and constraints, agro-climatic conditions, and production and market related risks are other external factors that could affect the commercialization process (Pender et al. 2006). On the other hand, factors like smallholder resource

endowments including land and other natural capital, labor, physical capital, human capital etc. are household specific and considered to be internal determinants. Some of these factors are briefly discussed in the next subsections.

According a study commissioned by EUCORD and conducted by FFARM (2016) the following were pinpointed as the key challenges and opportunities of the Ethiopian malt barley value chain in the study area. These are;

2.5.1 Challenges of Ethiopian Malt Barley Production and Marketing

Remarkable achievements have been seen over the last 2-3 years especially since the introduction of the new malt barley varieties. Productivity is almost tripled or quadrupled and resulted in income increase and the quality and availability of malt barley for the industries is also getting better. In spite of the successes there are still many challenges and outstanding issues that need the attention of different stakeholders. The challenges and are summarized as follows:

i. Appropriate Technologies and Product Development:

- ✓ One of the important technologies is improved seeds development and supply on sustainable basis. Though HEINEKEN has introduced two better yielding varieties of malt barley that have been adequately multiplied and distributed to the producers and contributed to improvement of the crop productivity and quality for the time being, sustainability of this supply might not be ensured unless the local research centers either have developed their own better yielding and disease tolerant or seed importing mechanism is formally established. This doubt is created because of HEINEKEN specialty on brewery not on seed varieties development and distribution.
- ✓ The other technology related challenge is availability of appropriate agricultural tools and machineries for production and harvest activities of the crop. Production and harvest activities of the new malt barley varieties require intensive activities and techniques that cannot be addressed easily by human labor only in a given short time

of planting and harvesting. To overcome such challenges, tractors for land preparation, row planting machines and harvester combiners are importantly required tools and machines that are in short of supply.

- ✓ Appropriateness of chemicals supplied by different dealers and how to apply both in dosage and the care to be taken are not clear for many of the producers. According to some of the producers, private chemical suppliers are either not knowledgeable or skillful to provide appropriate chemicals for particular problem with advice on how to apply or they intentionally distribute inappropriate chemicals like any order thing for the sake of making money. Because of that producers buy as they feel and apply on their field haphazardly and as a result the chemicals do not adequately respond to the problem for which they are wanted. Moreover, if they are not appropriate handled, the far reaching effect of the chemicals on human being and the environment could be another problem.

ii. Access to Inputs, Technologies and Technical Supports:

- ✓ Effectiveness of the new malt barley varieties in productivity and quality are attained with use of improved seed and appropriate application of fertilizers and chemicals. However, significant number of producers either do not apply optimum rate of seed, fertilizers and chemicals on a given plot of land or rely on older generation seeds due to high cost of the inputs or due to limited awareness on the importance of using improved seeds and other inputs in optimum quality and quantity.
- ✓ Delay in supply of the inputs from their sources is also another challenge. For instance, according to different producers and experts, seed supply from OSE by different suppliers was not in time during 2016/17 planting season. The same problem has been reported in fertilizers supply as well in many places while some chemicals were even totally not available.
- ✓ Agronomists of different development organizations such as EUCORD, TechnoServe, HUNDEE, etc., and the government DAs provide technical services. The services of these different experts are not equal intensity and quality.

Because of this difference, their target farmers have also different results. On top of that, except maybe service of the government DAs, others are project time bounded. Therefore, to ensuring adequacy of the services and sustainability has to be an area of concern for all stakeholders.

iii. Access to Finance

- ✓ Finance is another important resource required for facilitation of production and marketing of the crop. Both the producers and aggregators need finance for inputs purchase and outputs collection respectively. In attempts to address the need, brewery companies and AMF provide some embedded financial advances without interest in their business relation with the producers and aggregators.
- ✓ MFIs (Busa Gonofa, HARBU and WASASA) also provide limited size credits with interest. The size of the MFIs loan is limited due their limited financial capacity and the regulations of the National Bank that prohibits them not to lend more than 1% for their single entity client.
- ✓ Cooperatives unions and Model Farmers also provide some limited credits for their members with/without interest for working capital and their loan size is limited due to their limited financial capacity. All these services are not available timely and adequate in volume compared to the need of the producers and aggregators for finance. Moreover, sustainability of all these financing sources is not ascertained as for instance HEINEKEN has already quitted its inputs pre-financing service starting from 2016/17 planting season.

iv. Access to Market and Competitiveness:

- ✓ Difference in collection price and incentives provision for producers and aggregators among the companies caused swing of producers in their supply which led them to breach of contract agreements,
- ✓ Higher price of local malt barley and malt than the international supply can cause frustration of the companies in their local procurement targets,

- ✓ Limited malting capacity of the local malting factories could lead to saturation of local demand for malt barley in a very short-time.
- ✓ Some aggregators doubt about ingenuity and sincerity of quality controllers of STAR-Ethiopia and AMF in grading the grain.

v. Organization and Management:

- ✓ Weak business operation efficiency and management capacity of cooperatives and unions on one hand and the local authorities' resistance alternative sourcing mechanisms can expose the brewery companies to business inefficiency and ineffectiveness on the other.
- ✓ Limited understanding of producers and their aggregators on contract obligations and its effect on one hand weak contract enforcement mechanisms or possibilities lead to breaching of contracts.

vi. Environmental Concern: Intensive chemical inputs utilization and mono-cropping culture often lead to different environmental and human disasters. Though it is said that both the producers and the company have taken care of this concern in advance, it is always important to be conscious about the possible dangers and take necessary cautions.

vii. Gender Equality: Women's role in commercial crops production, marketing and decision making to control over the benefits generates from there is often limited to service provision. Malt barley cannot be different and there is no evidence that the women have equal access and control over the benefits gained from this business except the rhetoric of the husbands and local politicians. For sustainability of the value chain development and justice, ensuring equality of gender is a requirement.

2.5.2 Opportunities of Ethiopian Malt Barley Production and Marketing

Opportunities are potential factors that can facilitate better achievement in malt barley production and marketing if properly utilized. Among such factors that are provided by the

market system, the government, development organizations and private businesses, the following are identified as important ones.

a) **Technology and Product Development:**

- ✓ Introduction of the two new variety seeds are both actualized and still a potential for farther expansion of malt barley production to more number of producers and expand its outreaches to other areas.
- ✓ Existence of public research set ups in different agro-ecologies can facilitate development of different variety seeds through breeding and cross-breeding with consideration of differences in micro-climates and better performance in both productivity and resistance to diseases.
- ✓ Existence of over 1 million hectares of agro-ecologically suitable land for malt barley production, out of which only about 10% is utilized, can be exploited if increment of malt barley production is sought.

b) **Access to inputs and technical assistances:**

- ✓ Facilitation of the brewery companies and AMF to avail seed and other inputs for the producers through different arrangements can contribute to easy access of producers,
- ✓ Technical supports of agronomists from different development organizations such as EUCORD, HUNDEE and Techno-serve facilitates better production and post-harvest handling practices of the producers and aggregators.

c) **Access to financial services:**

- ✓ Inputs pre-financing and working capital advance provision of the breweries and AMF reduces financial constraints.
- ✓ Financially constrained producers can rely to some extent on micro-finance credit if cost benefit analysis of credit taking is well understood by the producers.

d) **Access to market:**

- ✓ Existence and fast growth of demand for malt, because of significant growth in investment on brewery factories, makes market for malt barley non-satiable in the short-run.
- ✓ The new market access system of HEINEKEN facilitates direct access of producers to the ultimate buyers through their formal and informal organizations without going through long channels, and
- ✓ Creation of informal producers groups such as model farmers' groups and MFI groups can facilitate alternative accesses for the producers on one hand and efficient sourcing for the company on the other,

e) **Organization and Management**: Existing structures of cooperatives and unions can be strengthen and used to enhance the cooperatives roles in aggregating malt barley.

f) **Enabling Environment:** Strong commitment of the government from top to down for development of malt barley production and marketing as one of strategic crops in the national GTP-II plan can facilitate the overall development process of the value chain.

2.6 The Ethiopian Malt Barley Value Chain

Ethiopia is the second largest barley producer in Africa, next to Morocco, accounting for about 25 percent of the total barley production in the continent (FAO, 2014). Ethiopia is also recognized as a center of diversity, as its barley germplasms have global significance because of improved traits, including disease resistance (Vavilov, 1951, Qualset, 1975, and Bonman et al., 2005). Unlike in industrialized countries where barley is mainly used for animal feed and malting, it is one of the staple food crops in Ethiopia, accounting for 6 percent of the per capita calorie consumption. It is also important in terms of the lives and livelihood of small farmers. Barley is the fifth most important cereal crop after teff, wheat, corn, and sorghum. It is the staple food grain especially for Ethiopian highlanders who

produce the crop with indigenous technologies. It is cultivated by smallholders in every region of Ethiopia, since it is able to grow at all elevations, but it performs best at the higher elevations in the northern and central regions of the country (www.daff.gov.za, 2012).

Barley is grown as a 'meher' (main season) crop in the higher altitudes of Dega regions. It is grown mainly in Arsi, Bale, Showa, Sidama, Gurage, Gojam and Gonder. It is also widely cultivated as a 'belg' crop in many areas. The annual cultivated area is estimated at 881,680 hectares and production at 999,610 tons, representing 18.7 per cent of the cultivated area and 18.3 per cent of the total cereal production.

Although malt barley is not among the top cereal crops in Ethiopia, its importance is rapidly growing in terms of production, potential for poverty reduction, as well as for the country's coffers and the current balance of payment situation. Between 2003/04 and 2013/14, the number of smallholders growing barley increased from 3.5 million to 4.5 million; yields increased from 1.17 metric tons per hectare to 1.87 metric tons per hectare; and total production grew from 1.0 million tons in 2005 to about 1.9 million tons in 2014 (CSA, 2005; CSA, 2014). However, Ethiopia produces mostly food barley, with its share estimated to be 90 percent (Alemu et al., 2014), and remains significantly deficient in malt barley. As a result, while the country has generated a surplus of food barley and has consistently exported a small amount, the net import bill for malt barley jumped from US$240 thousand in 1997 to US$40 million in 2014. If this trend continues, Ethiopia's barley import bill could be as high as US$420 million by 2025. Given the country's balance of payment situation in recent years, this is an alarming trend. On the other hand, if farmers can cost effectively grow malt barley to meet the rapid growth in domestic demand, their livelihoods could be significantly improved.

There are several reasons to be optimistic about the potential gains from an increase in production of malt barley. On the demand side, historical evidence suggests that consumption patterns change when incomes increase. Dietary patterns become diversified, and one element of this diet diversity is an increased consumption of alcoholic beverages. Producing such beverages has historically been part of Ethiopian tradition. The level of

consumption, however, has remained significantly lower than the neighboring countries. For instance, per capita beer consumption in Ethiopia is about 4.0 liters, which compares with 11.0 liters in Kenya, 9.5 liters in Uganda, and 55 liters in South Africa (FAO, 2011). This has started to change over the last decade as the economy has begun to grow. Ethiopia has experienced one of the fastest increases of beer consumption in the recent years, with consumption growing by as much as 90 percent between 2002 and 2011 (FAO, 2014). Below is the projection of the beer (Hl), barley (t) and malt requirements for the coming 5 years.

Table 4: Projection of Beer, Malt, Malt Barley Projection of Ethiopia

Categories	Years				
	2016	2017	2018	2019	2020
Projected Sales volumes (Hl)	7,705,000	8,398,450	9,658,218	10,527,457	12,106,576
Projected Brewing volumes (Hl)	8,398,450	9,154,311	10,527,457	11,474,928	13,196,167
Required Malt (MT):	134,375	146,469	168,439	183,599	211,139
Required Barley (MT):	174,688	190,410	218,971	238,679	274,480
Required Ha (Average 3.5T/Ha)	49,911	54,403	62,563	68,194	78,243
Barley required for Food (MT)	66,402.0	69,058.08	73,201.6	79,057.7	86,963.5
Required Ha (3.5T/Ha) for Food	18,972	19,731	20,915	22,588	24,847
Ha required for seed multiplication	2,780.0	3,130.4	3,404.3	3,872.6	-
Total required Ha	71,663	77,264	86,882	94,654	103,270

Measures		
Required Malt kg / hl brewed	16.0	kg/Hl average
Ratio Hl Brew/ Hl Sales	1.09	Hl Brew/Hl Sales
Conversion factor barley to malt	1.30	barley needed for 1kg malt
Average Barley Yield /Hectare	3.5	MT/Ha

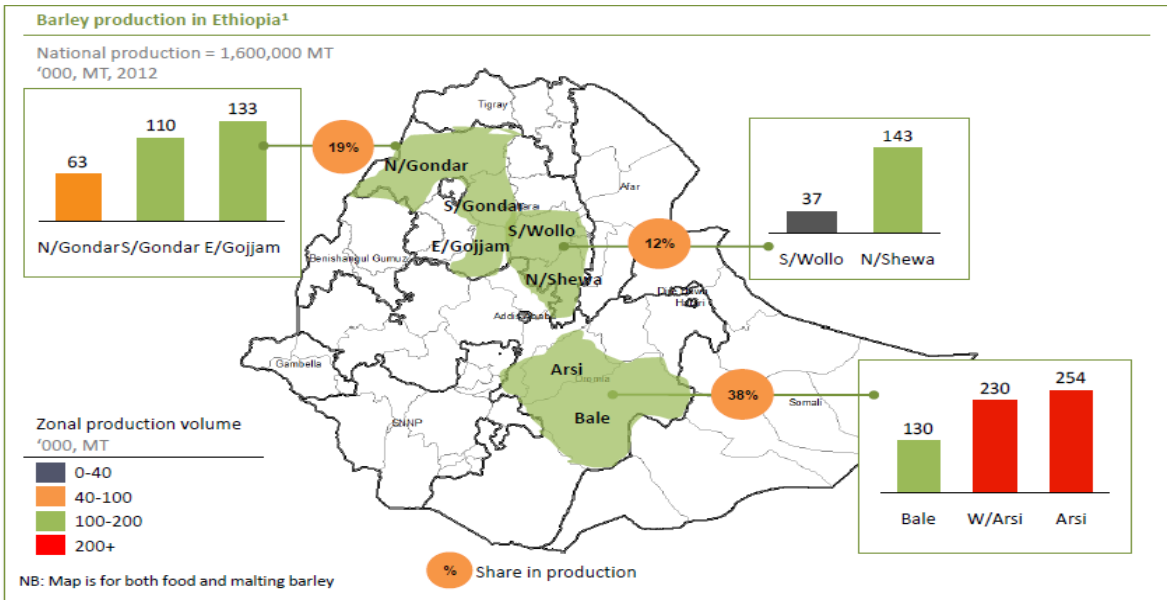
Source: Own calculation and Estimations

On the supply side, there is a high potential for increasing productivity through improved farm practices and the application of modern inputs. In the 2013/14 meher season, Ethiopian farmers applied almost a million tons of fertilizers on cereal crops with of which only 44,465 tons (44 kgs/ha) applied to barley, compared to 219,596 tons (73 kgs/ha) for wheat and 162,295 tons (101 kgs/ha) for *teff*. Second, barley has received far less attention from both national and international research organizations.

According to the report of EUCORD (2016), most of the breweries (HEINEKEN, DIAGEO, Habesha and Dashen) have their own malt barley projects that support farmers. Especially, the malt barley project of HEINEKEN called CREATE is a unique effort towards realizing the country's self sufficiency of malt barley in the near future. The new high yielding and quality malt barley varieties (Traveler and Grace) imported and adopted by HEINEKEN in collaboration with ATA and EIAR. It was confirmed that over the last 3-4 years productivity of smallholders who have grown these varieties have grown to 4.6 tons per Hectare on average. There are some farmers who recorded maximum of 8.2 tons per hectare in 2016 harvest season. To boost the malt barley sector, HEINEKEN is undergoing seed multiplication with Oromia Seed Enterprise (OSE) and in 2016 planting season sufficient certified seed was made available to farmers. This is big donation to the country and to the malt barley sector.

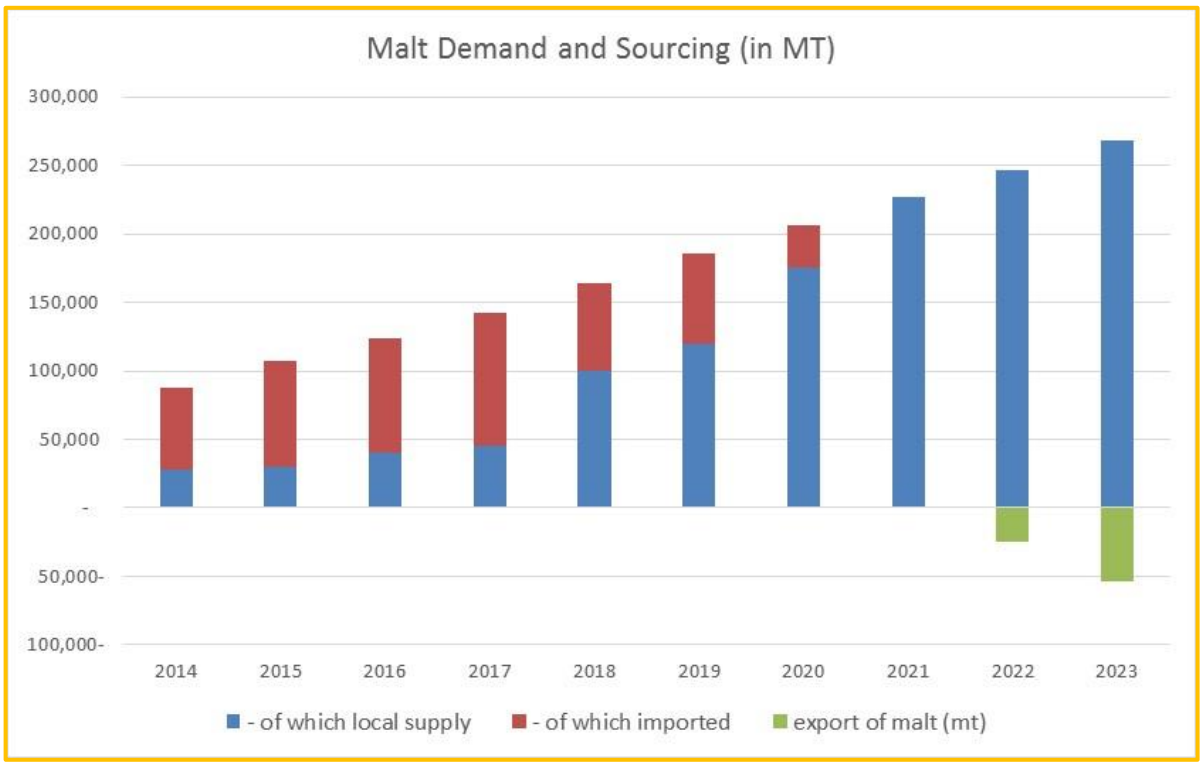
Therefore, there is a unique opportunity to promote domestic value addition, agro-industry development, and nonfarm income generation—all of which are important elements of a successful economic transformation (Haggblade, et al., 2009). The government recognized this fact and requested that ATA develop a strategy to support higher production in the barley subsector.

Figure 5: Malt Barley Growing Areas of Ethiopia



Source: ATA document (2013)

Figure 6: Malt Barley and Malt Demand Projection of Ethiopia



Source: Rabo Bank Study in Ethiopia (2016)

The productivity of malt barley in 2014 was 1.87 tons /ha as compared to the current level (4.6 tones on average for HEINEKEN contracted farmers). Marketed surplus is expected mostly from Amhara and Oromia regions. However, notice that marketed surplus is only concentrated in a few zones in these two regions. More specifically, the woredas with a relatively higher marketed surplus of barley are from zones that are known for their malt barley production and potential, which include: Arsi, West Arsi, Bale and West Shewa zones of Oromia Region and North Gondar, East Gojam and North Shewa zones of Amhara Region. The study zones constitute more than 45% of the total national production of malt barley.

Small traders (mainly local assemblers) are the main actors in the barley value chain. As the value chain develops, the role of these actors will diminish, and the farmer will have more direct access to the terminal markets. However, given the current state of the market fundamentals—that is, infrastructure, institutions, and information—these actors perform an important market function, namely product aggregation. The majority of these traders are also smallholders who conduct commodity trade as a secondary business. Therefore, the surpluses generated through trading ultimately contribute to improving well-being and food security. Despite heavy public emphasis on farmers' organizations, cooperatives appear to play a minimal role in the barley value chain. Less than half a percentage of marketed barley passes through cooperatives, which has little influence on the cooperatives revenues.

The recently introduced model of HEINEKEN (Nucleus/model farmers approach) is also playing a key role in the aggregation and marketing of malt barley in the study areas. In 2014, 230,000 tons of barley was marketed; and only 920 tons were marketed through a cooperative, the majority of which was malt barley. Assuming a margin of 10 percent and a unit price of 10,000 Birr per ton, cooperatives made about 920,000 Birr or US$46,000, which is miniscule given the size of the market. Bernard et al. (2008; 2010) also reported that cooperatives accounted for 5-10 percent of all grain marketing. Another study that focused on malt barley found that cooperatives marketed 6 percent of the surplus (Alemu et al. 2014). In 2016 purchase season (January – June), HEINEKEN secured its supply from

Model/Nucleus farmers, unions/coops and other sources with a proportion of 84%, 12% and 4% respectively (EUCORD Report, 2016).

The structure of malt processing in Ethiopia has been changing. Until 2013, Assela Malt Factory (AMF) was the only malting factory in the country and carried out both domestic and international procurement of malt barley. In the domestic market, the factory enjoyed monopsony power (one buyer but many sellers) over the malt barley sellers and, consequently, enjoyed some price setting power. The entry of new market players—HEINEKEN and DIAGEO —and a new malt factory, Gondar Malt, led to competition in the sector. According to annual report of EUCORD (2016), local barley is about 11% expensive than imported barley. Moreover, the malting fee (toll malting) that AMF is charging is very expensive compared to other countries in Europe (8.17 Birr/kg of malt Versus 1.8 Birr/kg of malt).

Ethiopia is not only the largest producer but also the biggest consumer of barley and various barley products in Africa south of the Sahara (SSA). Barley is a main ingredient in staple foods (e.g., enjera, porridge, and bread) and local drinks (e.g., Tella and Besso) in addition to its use for malting and animal feed. In 2013/14, household consumption accounted for 64 percent of the total barley production in the country (CSA, 2014).

Barley serves as food, beverage, and feed for many highlanders in the country and as a substitute for other cereals. At the national level, it accounts for about 6 percent of the per capita calorie consumption (Berhane et al., 2011). However, food barley and barley products' contribution to the Ethiopian diets is small compared to other staple foods. In fact, it is the least important staple in both quantity and share of calories in total consumption (Berhane et al., 2011). Only 20 percent of households in Ethiopia consume barley and barley products, and its share in the total value of consumption is estimated at 9 percent

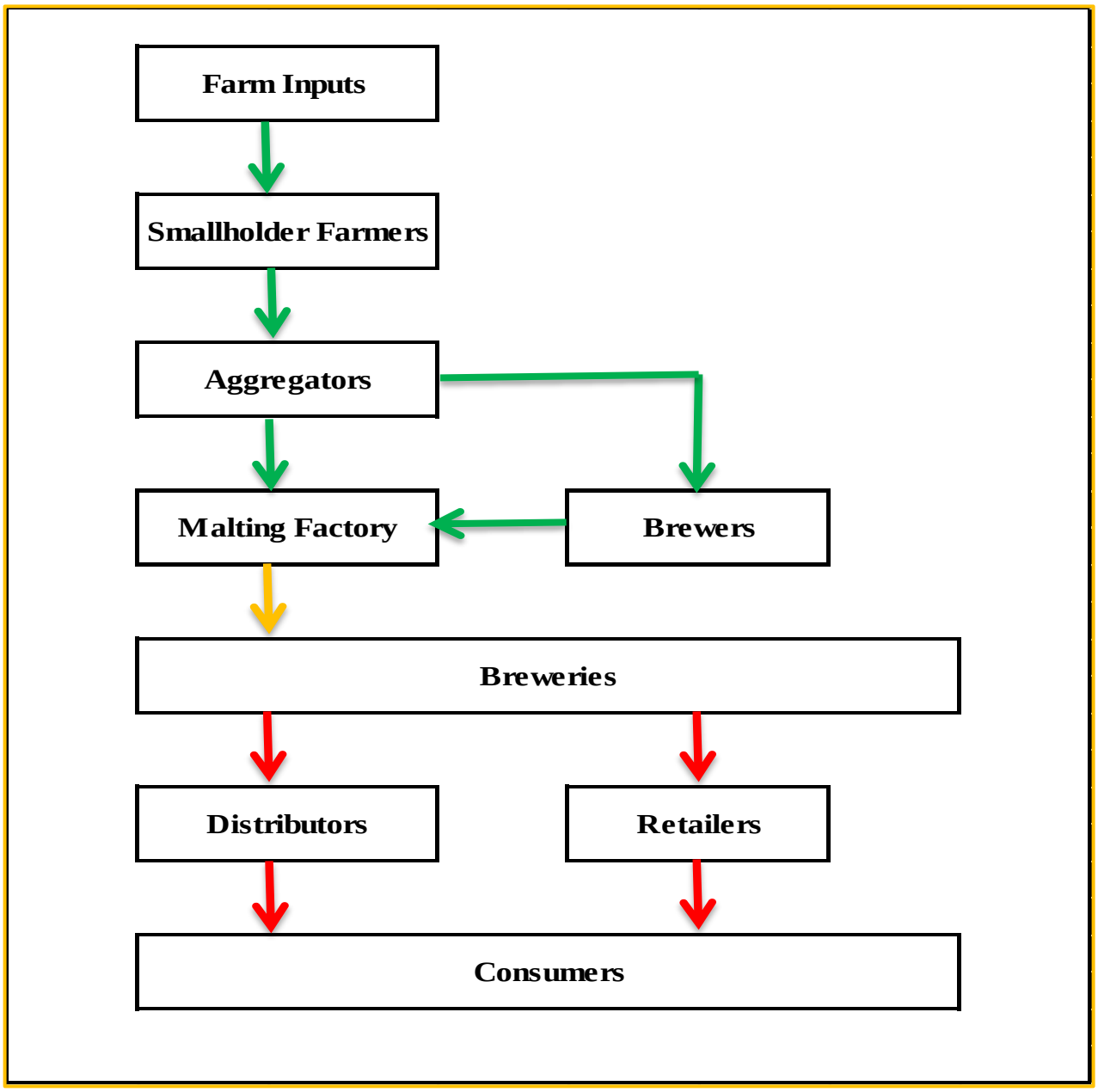
With the current malt barley demand (high price) and with the widely adoption of the new HEINEKEN varieties malt barley is seen as a commercial crop than for consumption especially in Arsi, West Arsi and Bale areas. The trend over the last three years indicates

that farmers consume maximum of 30% of the total malt barley they produce in a year and sell the remaining to the market. This is especially true with the new varieties since they fetch higher price due to their quality - grain size, purity and demanded by the breweries (EUCORD Report, 2016).

The Rabo Bank Study in Ethiopia (2016) indicated that the beer market will continue to grow at double digit rates, at least two large investments will need to be made in greenfield malting plants (60.000-100.000 Tons Malt per year) and if barley productivity will double in the next 5 years, then it can be assumed that Ethiopia can be self-sufficient in both barley and malt around 2020. Subsequently, exports of malt can commence assuming the ongoing expansion of malting capacity and barley production. The latter also assumes that Ethiopia reaches export parity with the world market and neighboring countries will be interested to buy Ethiopian malt.

The below chart indicates about the current malt barley value chain in Ethiopia. This is typically a chain for the malt barley that goes to industries and does not capture the malt barley that goes to the food and food industries. It was confirmed that some limited proportion of the malt barley is also sold to food industries and smuggled to neighboring countries like Djibouti and Somalia via the south and East routs.

Figure 7: The Current Malt Barley Value Chain in Ethiopia



Source: Own compilation

According to a reflection study by Agri-Profocus Ethiopia (2015) the cost benefit analysis of some competing crops and the impact on both parties (buyers and farmers) is indicated as follows. The study also compares the gains for new malt barley varieties versus local/old varieties of malt barley.

Table 5: Income from new malt barley varieties in comparison with other crops

Item	New malt barley	Traditional malt barley	Wheat	Peas
Seed	2,362	1,500	2,161	2,205
Fertilizer	3,330	3,330	2,580	1,955
Herbicide	895	600	1,050	760
Fungicide	930	600	1,116	1,200
Total costs/ha	**7,517**	**6,030**	**6,907**	**6,120**
Yield (qt/ha)	45	35	30	15
Price per qt	900	900	850	1,400
Gross income/ha	**40,500**	**31,500**	**25,500**	**21,000**
Revenues/ha	**32,983**	**25,470**	**18,593**	**14,880**

Source: Agri-Profocus Ethiopia Study (2015)

It is easy to see that the new malt barley varieties are very attractive for farmers and that is why farmers are enthusiastic about the new varieties; they can give an extra income of 7.500 ETB/ha. Revenues are also higher than for other crops. In 2014/15 the new varieties were not available for contract farmers. In the 2015/16 season however they were.

The first estimate in Arsi zone show an average yield of 45 and 50 qt/ha, while the maximum for local varieties is 30 and 35 qt/ha for resp. Holker and Sabini. So the gain is 10 qt/ha, or more. This gives an additional income of over 10.000 ETB/ha. With an estimated additional costs of 2.500 ETB/ha the additional income is over 7.500 qt/ha or 5.000 ETB/farmer.

In a similar manner, the researcher himself compiled some cost benefit analysis for the new malt barley varieties and other competing crops in the study area. The income from the new malt barley varieties stands on the top compared to other crops. The income from horticultural crops is in most cases high compared to crops high if market conditions are suitable. On top of this horticultural crops are perishable and bulky to transport.

Table 6: Cost Benefit Analysis of Growing New Malt Barley Varieties.

Cost - Benefit Analysis											
		Production and Productivity			Grain Selling		Straw Selling			Net Earning	
S/N	Competing crops	Production cost (Birr/ton)	Productivity (t/ha)	Total Production Cost (Birr/ha)	Unit Selling price (Birr/t)	Total Selling price (Birr/ha)	Straw (t/ha)	Unit Selling Price (Birr/ton)	Total Selling Price (Birr/ha)	Net Earning (Birr/ha)	Net Earning (Birr/ton)
1	Wheat	1,475.0	4.2	6,195.0	8,450.0	35,490.0	35.0	200.0	7,000.0	36,295	7,175
2	Potato	1,532.0	28.5	43,662.0	5,000.0	142,500.0	-	-	-	98,838	3,468
3	Food Barley	956.0	2.9	2,772.4	7,000.0	20,300.0	20.0	250.0	5,000.0	22,528	6,294
4	Malt Barley (Old Varieties)	1,060.0	2.5	2,650.0	10,000.0	25,000.0	21.0	250.0	5,250.0	27,600	9,190
5	Beans	1,254.0	2.1	2,633.4	17,500.0	36,750.0	18.5	100.0	1,850.0	35,967	16,346
6	Oil crops	759.0	1.5	1,138.5	18,000.0	27,000.0	15.5	170.0	2,635.0	28,497	17,411
7	Malt Barley (New Varieties)	1,365.0	4.6	6,279.0	10,000.0	46,000.0	20.0	250.0	5,000.0	44,721	8,885

Source: Own compilation

As can be seen from the above table, growing malt barley (new varieties) is 23% more profitable than growing wheat, 62% more profitable than growing old varieties of malt barley, 99% more profitable than growing food barley, 24% more profitable than growing beans and 57% more profitable than growing oil crops.

Similarly, the study by FFARM (2016) also indicated some cost-benefit analysis between the new malt barley variety (Traveler) and two other competing crops (food barley and bread wheat). Like the above cases, growing these new varieties is by far high income fetching than other competing crops. By growing Traveler farmer can earn 171% of gross margin as compared to 84% and 67% in the case of bread wheat and food barley respectively.

Table 7: Comparative Cost-Benefit Analysis of the new Variety Malt Barley

		Malt Barley (Travler)				Food Barley			Bread Wheat		
No	Description	U.M	Quantity	U. Value	Total Value	Quantity	U. Value	Total value	Quantity	U. Value	Total Value
1	Land Rent	Hectare	1	4,358.33	4,358.33	1	4,358.33	4,358.33	1	4,358.33	4,358.33
2	Seed Per hectate	Quintal	1.56	1,758.33	2,740.07	1.8	840.00	1,512.00	1.71	1,075.00	1,838.25
3	Total Human labor Cost	Lumpsom	1	5,209.38	5,209.38	1	3,680.00	3,680.00	1	4,245.00	4,245.00
4	Tractor Cost	Hectare	1	-	-	1	-	-	1	-	-
5	Combine	Quintal	52.75	-	-	26	-	-	35.28	-	-
6	Oxen Labor Cost	Lumpsom	1	1,255.00	1,255.00	1	1,170.00	1,170.00	1	1,170.00	1,170.00
7	Cost of Chemical fertilizers	Lumpsom	1	2,930.50	2,930.50	1	1,178.00	1,178.00	1	1,581.30	1,581.30
8	Cost of	Lumpsom	1	1,120.00	1,120.00	1	862.00	862.00	1	634.60	634.60
9	Other costs	Lumpsom	1	866.58	866.58	1	467.00	467.00	1	535.00	535.00
	Total Cost	**ETB**			**18,479.86**			**13,227.33**			**14,362.48**
	Total Prodction & income	**Quintal**	**52.75**	**950.00**	**50,112.50**	**26**	**850.00**	**22,100.00**	**35.28**	**750.00**	**26,460.00**
	Gross Profit	**ETB**			**31,632.64**			**8,872.67**			**12,097.52**
	Gross margin				**171%**			**67%**			**84%**

The reflection study by Agri-Profocus Ethiopia (2015) also presented the impact of the contract farming schemes for both buyers and sellers. One can see the current status of malt barley in Ethiopia which has already benefited the farmers but not yet the companies. Below is the comparison.

Table 8: Impact of the contract farming schemes on farmers and companies

Case	Start	Impact on farmer	Reason for impact	Impact on company	Reason for impact
Malt Barley	2014	+++	Better seed	++ / -	High costs
Chickpea	2014	+++	Better seed	-	Lost seeds
Potatoes	2012	+++	Better seed	-	No purchase
Sesame	2007	++	Premium price	+++	Good supply
Bamboo	2011	++	Premium price	-	No purchase
Green beans	1998	+	Low price	+ / -	Low price
Passion fruit	2010	+	Low price	-	Low supply
Sugarcane	2008	+ / -	Low price	+++	Good supply

From the above comparison, only the case of sesame fulfills unqualified win-win situation. In most schemes things could improve substantially. In some cases the companies have to do better. In the case of malt barley, interfaces (unions, coops and model farmers) need to take over several tasks from the companies in an efficient way: input supply, access to finance, quality control, etc to reduce the current high cost of malt barley compared to imports.

2.7 Large Farms versus smallholders – Performances and Rationales

The 2007/08 food price spike, together with the recognition that a number of countries are endowed with large amounts of seemingly unoccupied or unclaimed land triggered an enormous increase in private sector demand for agricultural land (Deininger and Byerlee 2011) and, implicitly, water (Rulli *et al.* 2013) to satisfy seemingly inexhaustible demands for food, fuel, and fiber. Although often described as a 'land grab'(Hall 2011), this phenomenon, which was most acutely felt in Africa (Anseeuw *et al.* 2012), also gave rise to expectations of private capital to complement public investment and help make up for decades of underinvestment in agriculture. This, it was hoped, could provide a stepping stone towards more rapid rural development and poverty reduction for countries with ample

land resources that had remained heavily dependent on agriculture for growth and poverty reduction (Collier and Dercon 2014).

Beyond any direct increments in productivity and value added by large farms compared to earlier land uses, a key argument in this debate revolves around local spillover effects. Critics maintain that, especially if land is made available below its true value, investment promotion policies may attract speculators who fail to benefit locals and generate negative spillovers, e.g. by monopolizing factor markets or encroaching on land or water resources to which they have no right. Supporters believe that, through discovery of agro ecological suitability and demonstration effects, newly established large farms can provide locals with access to new technology, credit, input, or labor markets and thus generate positive spillovers, similar to other forms of foreign direct investment (FDI). In fact, the argument that public subsides, up to the net present value of the stream of spillover benefits generated, may be justified (Collier and Venables 2012) provides the *raison d'etre* for agricultural investment promotion agencies all over the globe.

In light of the policy relevance of this issue, the marked differences between general FDI and large-scale agricultural investment (Arezki *et al.* 2015), and the fact that in many African countries the large majority of land-related investment originates with domestic rather than foreign investors, empirical evidence to explore the presence and magnitude of such effects would be highly desirable. Yet, partly due to limited data availability, often justified by the sensitive and potentially controversial nature of such investment, such evidence is currently not available. This limits not only governments' and investors' ability to make rational decisions and acquire experience, but may also constrain the availability of resources to the sector, as financial intermediaries have no basis to assess and try to insure the risk associated with such ventures.

Debates over the relative efficiency of small and large farms are longstanding (see Hazell et al. 2007). Notwithstanding that the successes of the green revolution in Asia, and above all in China, were achieved largely by smallholders, skepticism about the ability of Africa's small farmers to repeat this experience is widespread. A recent example is an essay by

Professor Collier (2008) that argues that to get agriculture in Africa moving, large commercial farms may be a better option than smallholder development.

Why the pessimism over the prospects for African smallholder development? Amongst the reasons mentioned are that Africa's physical geography — soils, climate, hydrology — means that the technical challenge of breeding higher-yielding crop varieties is more daunting and that the possibilities for irrigation are less; that lower world food prices — as seen before the 2007-2008 price spike — made food crop intensification uneconomic; and that governments were unprepared or unable to contemplate providing the extensive state support to kick-start a green revolution in the way that Asian governments had in the 1960s and 1970s.

Steve Wiggins (June 2009) argues that small farmers in Africa have a record of agricultural growth that suggests that, yes, more farm output can be achieved largely through smallholder development - just as has been the case for the Asian green revolutions. The recent history of African agricultural development is highly uneven across countries, and very probably equally so between regions within them. The disappointments that have led some to pessimistic assessments of the continent's prospects are real. But the same unevenness includes successes that are not always recognized. The implication seems clear: there are no specifically African disadvantages. If, for example, Burkina Faso, a small, landlocked country in the Sahel with at best modest natural resources, can raise its grain output - coming very largely from small farms - from the early 1960s by virtually the same margin as Vietnamese rice output, then surely most other countries in Africa can similarly develop their agriculture.

Even if in general terms the elements for success are well known, since the detail is elusive, it is not necessarily straightforward to stimulate smallholder agricultural development. The challenges can be quite stiff in some cases. This, however, should not cause the effort to be abandoned in favor of untested alternatives, such as trying to create and support large farms that face many if not all of the same issues. Most of the agenda for small farm development is common to any form of agricultural development, and some of it applies to all economic

development; so special and unusual resources are not required. On the contrary, history shows examples where modest investments of public spending in a reasonably favorable policy context leads to strong response, in effort, innovation and investment by small farmers themselves - and those they work with in supply chains, such as traders.

Many research results reveal that smallholders have higher yield and higher profit margins than large-holders, but that they are less efficient in marketing their produce, and that they incur equal costs on average. Smallholders and large-scale farmers were also observed to have similar socio-economic characteristics except for their household sizes; that is, smallholders have small families of 5 persons as opposed to 11 persons for large-scale farms. The most prominent socioeconomic factors determining farmer's economic performance include household size and experience in cocoa farming. The most common marketing strategy adopted predominantly by large-scale farmers was group selling, hence no statistical difference between their selling prices.

Although smallholding is an old concept, capitalizing on smallholders as a means to achieve food security, poverty alleviation, economic growth and sustainable development, became plausible only after the Green Revolution in Asian countries (Lipton, 2005; FAO, 2010). However some policies continue to encourage large-scale farming in sectors dominated by manual labor. A comparative study of the relative performance of small-scale and large-scale farmers may provide an insight to the effectiveness of such policies.

*Chi Bemieh Fule (2013) confirmed that s*mall-scale farms have higher yield than large-scale farms. More experience in cocoa farming and larger farm families appear to be primordial for high yield. This is because available family labor would imply low costs of supervision, hence low risk of moral hazard and pre- and/or post-harvest loss. Large-scale farmers are more business-oriented as they are observed to participate more in collective marketing, organize sales and sort reliable information about the free-on-board prices. Although their selling prices were observed to be slightly higher than those of smallholders, the difference was not statistically significant. Based on actual expenditures, it can be concluded that large-scale farms are less profitable than small-scale farms. This can be attributed to the fact that

their slightly higher market prices and lower costs are not enough to offset the effect of the low yields observed. Also large family farms and higher experience in cocoa farming are suitable for higher profit.

After 1990, a strategy of market liberalization and agriculture-led industrialization focusing on small-scale producers was adopted. In the past, the country regularly relied on food aid to meet food needs in the face of droughts (Dercon 2014). Yet, investment on land not fully utilized is identified as a strategic priority in the government's Growth and Transformation Plan. This decision to actively seek out large land-based agricultural investment implied that Ethiopia attracted interest by the global 'land rush' debate. Historically experience with large farms in Ethiopia has not been positive: Before 1974, subsidies were used to attract commercial investment for cash crops production in so-called 'model farms'. But this was often associated with tenant evictions and little employment generation with at best mediocre productive performance.

Supporters of large investment argue that, as most of the land in question is located in the lowlands, capital intensive investment is the only way to bring it to productive use and generate spillovers for smallholders. Critics point to cases of land transfers without proper verification of current occupancy or utilization (Rahmato 2011) and argue that such transfers failed to improve local livelihoods (Rahmato 2014).

A review of a sample of more than 10,600 investment licenses issued by the Agricultural Investment Agency finds that less than 20% of license holders established a farm (UNDP 2015). Moreover, most of them lack farming experience, a business plan, or regular record maintenance, pointing towards ample scope for improvement. Based on an effort to establish an inventory of and conduct field visits to a sample of farms with more than 1,000 ha established after 2005, Keeley *et al.* (2014) draw four main conclusions, namely (i) leases cover very large areas of which only parts have been developed; (ii) there are incidences of conflict with existing occupants; (iii) the potential for job generation has not been realized; and (iv) to be effective, government efforts to make lease agreements public, while commendable as a first step, need to be followed by further efforts to improve transparency.

Ali *et al.* (2015) use the census of large farms that is annually conducted by the central statistical agency to quantify what had been described qualitatively earlier. Doing so suggests that since the 1990s, about 1.3 mn. ha had been transferred to a total of 6,612 commercial farms,3 most of which cultivated more than 50 ha. The annual rate of new farm establishment dropped from a peak of close to 800 in 2007/08 to some 250 in 2011/13. Also, 95% of land is transferred to Ethiopians or joint ventures rather than foreigners. With an average area of 200 ha (172 ha for Ethiopians and 840 ha for foreigners), this implies that the extent of land transferred to operational farms is well below media reports (Rahmato 2011; Rulli *et al.* 2013). By respondents' own estimates, 55% of land transferred remains unutilized, largely due to labor and technology constraints. Less than 20% of farms accessed credit, investments focused on land clearing and machinery, and only 36% made any lease payments. Below we will use these data to explore whether local people were affected by – positive or negative– spillovers from this phenomenon.

Industrialization is key to economic development, and agriculture—supplying raw materials for processing and value addition—is an essential component of that process. Comprising more than 40% of national GDP and producing the overwhelming majority of the Ethiopia's food, smallholder farmers are at the center of the country's recent economic success. So declared the director general of the International Livestock Research Institute (ILRI), Jimmy Smith, in an agriculture panel discussion this week organized by the *Economist* magazine and held at the Sheraton Hotel in Addis Ababa. The panel discussion, Building on Ethiopia's agricultural roots, was one of many held as part of the Economist two-day Ethiopia Summit. *Smith said. 'While it's useful to look at large-scale farming, we need to focus on what makes agriculture more sustainable and as well as competitive.* Ethiopia is enjoying real GDP growth, forecast to average 7% a year for the next five years. The summit sessions focused on what more needs to be done for the country to achieve its full potential. The major way to achieve and sustain this is to exploit and build opportunities for Ethiopia's millions of smallholder farmers, both contributing to growth in national income and enhanced food security.

Khalid Bomba (CEO ATA) explained how the government's focus in GTP has shifted from maximizing production and food security to productivity and value addition, and about moving smallholder farmers from subsistence to market-oriented output. Policy responses, continued Khalid, are being adapted by regional governments to meet various local challenges. In response to a prohibition on land ownership, for instance, the regional Amhara government has allowed smallholder farmers to lease farmland to allow other to form larger consolidated farms, which helps prevent land fragmentation caused by rapid population growth. The government, Khalid added, is looking at many agricultural development models, one of which is 'clustering'. This approach helps small farmers come together in cooperatives, for instance, to facilitate the acquisition of agricultural inputs and marketing of their produce, as well as determine which agricultural commodities can be most efficiently produced and under what circumstances. With more than 95% of the country's farmers farming at small scale, the way forward, Khalid said, is not just promoting large-scale farming throughout the country, but rather better linking the country's smallholders to commercial systems.

2.8 Role of Support Providers and Enablers

Focusing on agribusinesses and agro-industries, Christy *et al.* (2009) called the ingredients of enabling environments the "enabling needs". In her view, the State must provide "essential enablers" that make possible the functioning of markets and enterprises. So-called "important enablers" are second-order activities that the State can and often does provide, such as finance, transportation and information. "Useful enablers" are defined as sufficient but not necessary conditions, including grades and standards, linking small farmers to formal markets, and business development services.

According to the World Bank, creating enabling environments is a key driver in attracting FDI and domestic investments (World Bank, 2015), while stimulation of investment is vital in reinforcing enabling environments. Investment brings structural changes to enabling environments, helps agribusinesses and agro-industries meet international market demands more effectively, and helps enabling environments transform into competitive markets. An

enabling environment generally refers to creating conditions that attract investment, sometimes specifically FDI – creating a good investment climate. The investment climate reflects the array of local factors and conditions that create opportunities and incentives for businesses to invest and thrive. A large part of economic development policy is based on the principle that investment in general is a market-based solution, and on how specific firms' strategies contribute to domestic economic growth. Economic development policy has therefore often centered on creating favorable conditions for attracting investors. Establishing an enabling environment means creating the conditions for firms and industries to gain a competitive advantage in global markets as well.

Market players in agribusinesses help create competitive, sustainable agribusiness environments by partnering with governments and pursing market opportunities. Agribusiness-enabling environments are very important, and the return on investment is high in emerging markets when governments invest in basic infrastructure and business services. Carefully constructed PPPs can accelerate the expansion of agro-industries in rural areas by fostering the development of small and medium enterprises and linking them to markets (FAO, UNIDO and IFAD, 2008).

The agribusiness/agro-industry private sector is increasingly playing roles that traditionally belonged to the State in areas such as agricultural extension (dissemination of technical information), market information services and rural infrastructure, particularly in association with large-scale agro-based investments. Cases of export bans, forced nationalization of assets and imposition of price controls during the soaring food prices crisis of 2008 illustrate the types of sudden change in the "rules of the game" that agro-enterprises might face. Legal and regulatory frameworks that are secure and that guarantee a stable business climate are considered necessary to attract investment, in general and in the agri-food sector in particular.

The vital importance of PPPs must be emphasized and clarified in country and regional contexts. Stakeholders involved in the development of enabling environments must be aware of the value and mutual benefits of their collaboration and cooperation with each other.

Governments can take the lead and work with the private and NGOs to ensure that needs and capacities are met and parties reach mutually beneficial results.

Efficient coordination is considered an essential driver of agri-food chain competitiveness. Coordination among producers, processors, distributors and other stakeholders in supply chains is necessary to meet consumers' demands, ensuring that requirements regarding quality, quantity and timing of delivery are efficiently met. The country papers prepared for the regional workshops presented examples of coordination's role in ensuring the competitiveness of agro-enterprises. In India, for example, one constraint to the development of food processing is the fragmentation of value chains, which makes it difficult to convey consumer preferences and associated price incentives to upstream producers in traditional marketing channels.

The policies, institutions and support services that constitute an enabling environment certainly have a role in promoting chain coordination. For instance, the use of contracts to govern supply chain transactions can be promoted and facilitated. Regulations that promote competition and ensure market transparency can be enacted. Mechanisms that foster stakeholder dialogue, such as agribusiness chambers and professional associations, can be established. Other areas of intervention highlighted in the workshops are the promotion of collective action through strengthened farmers' organizations, capacity building to create advocacy groups, and the promotion of appropriate links among production, processing and consumption by developing efficient collaborative instruments, such as partnership mechanisms and/or agreements that take into account the different negotiating skills of individual links in the production chain.

Elias (2012) stated that Africa's smallholder farmers, who contribute 80 percent of food and agricultural production in sub-Saharan Africa and much of the world's food supply, are being encouraged by big business, governments and NGOs to become less subsistence based and more entrepreneurial by tailoring production to market forces. Development organisations are promoting the view that sustainable development in African countries should be generated by a partnership between large corporations and small farmers.

Increased productivity and value-chain involvement should address weaknesses in Africa's food economy and create employment opportunities by engaging smallholder farmers in agro-processing, packaging and the marketing of their products.

John Moffett, director of policy and strategy at Self Help Africa, an NGO that works with rural communities to bring sustainable solutions to the causes of hunger and poverty. The question is: can Africa balance the task of feeding populations of two billion by 2050 and at the same time accommodate the interests of global food retailers who are hungry to capitalize on the continent's resources, markets and smallholders? Private sector needed to play a greater role in smallholder agriculture as their increased participation in agricultural value chains was essential to stabilizing global food supply and developing the livelihood of Africa's smallholders.

David Hughes, professor of food markets at Imperial College, London, indicated that the emphasis on smallholders was a commercial imperative and not just a corporate social responsibility afterthought. If they don't get on the green train then they know they won't have a long-term business. I think we will start seeing businesses making radical changes to their business models over the next 10 years. Most of the African population depends on subsistence agriculture for their livelihoods. Therefore, we should focus on improving technology to enhance these existing systems. Others argue against rural-urban migration, claiming that cities in Africa are not well-planned, making it difficult for them to absorb unskilled rural migrants without endangering political stability. The African government will need to look into rural-urban migration before it is actively promoted.

One can ask the below questions and understand the need of smallholders in the development of the nation especially African Countries like Ethiopia.

- ☞ Is a centralized air-conditioning system better than 15 room air-conditioners in a large opera hall?
- ☞ Is it beneficial to have a 2 meter dia pizza for a team of 15 people or to order a small pan pizza of choice to every individual?

- ☞ Will it be better if a lion chases and kills a giraffe for his clan or every member chasing a hare for food?
- ☞ Will it be beneficial if 150 African farmers cultivate one hectare each or give 150 hectares to a corporate giant and wait for the allotted quota of grains?
- ☞ Will it be in the interest of people to give primary education to 150 African children or to send one to Oxford for higher education?

The Rabo Bank study in Ethiopia (2016) indicated that to improve productivity of Ethiopian barley farmers and to achieve the ambitions of the government to become self-sufficient and exporting over time, the following supports are required both from the government and other support providers (Like NGOs, private companies etc). These are;

- ✓ *Stimulate land pooling*: Currently most of the programmes are directed to smallholders growing only 0.5 to 1 ha of barley. This fragmentation makes it very difficult to effectively mechanize production especially for sowing, spraying and harvesting. While mechanizing these activities can have a profound positive effect on output. Therefor it is recommended to develop land pooling of some smallholders to create plots of at least 5 hectares which will enable effective mechanization.
- ✓ *Support emerging farmers/Model Farmers*: Ethiopia has limited opportunities to create large commercial farms. Taking into account the large number of smallholder farmers this might not even be desirable. Therefore it is recommended to develop some dedicated schemes to establish around 10 hectare farms where state land is available. Selection of these farmers can be based on a number of criteria like knowledge, age, entrepreneurial ship, etc. The schemes should also provide support packages including extension services, inputs and mechanization. Financing should be an integral part of the scheme and should offer a combination of inputs and equipment financing ideally provided by a local bank. It is felt that it is important to create such a class of farmers (so called "emerging farmers") that can create sufficient income comparable to other segments of the skilled labor population. These emerging farmers than can grow around 5 ha of malting barley and some other crops and thereby have a much more sustainable agricultural practice than the current practice at smallholder farming, which is largely mono cropping. Emerging farmers normally will enhance also the efficiency of the

supply chain as they are less inclined to side selling and will not use anything of their malting barley production for home use.

- ✓ *Explore feasibility of winter crop*: Currently malting barley is grown as a summer crop in the highlands 1,800 meters and above. It should be investigated whether in some of the lower areas malting barley can be introduced as a winter crop where some irrigation is available. (Egypt barley is typically grown as a winter crop). If the industry can be supplied both with a summer and winter crop this will reduce needed storage capacity etc., while creating additional income for some lower land producers.
- ✓ *Make available new seed varieties*: The new proven improved malting barley varieties should be made widely available to all malt barley producing farmers. Although breeder rights need to be respected appropriate policies need to be in place to enhance a wider use of the improved varieties. Research should be strengthened including trials on international varieties to determine the most appropriate varieties for each climate zone where barley is or can be grown. In the context of this paper this is recommended for malting barley, however the same issue is also relevant for other crops grown in Ethiopia.
- ✓ *Stimulate mechanization contractors*: There is a need to mechanize barley production not so much to reduce labor but more to reduce harvesting losses, better disease control and more even sowing. As farms are small this can be best achieved by stimulating the development of mechanization contractors. Suitable policies need to be developed to enhance the establishment of these contractors. This can be in the form of some subsidies and a guarantee fund for equipment finance to ensure that finance will be available. Beside the private sector also primary co-operatives can be encouraged to start this activity for their members. Any subsidy or guarantee fund should not only be available for the barley sector but also for the wider grains sector.
- ✓ *Support development of storage and Warehouse Receipts system*: Primary and secondary storage facilities need to be created not specifically for barley but for grains in general. Although the malting industry will have storage on their own sites, it cannot be expected that they will be provide local and regional storage facilities. This would not be efficient either, as the local and regional storage facilities need to provide storage for all grains. Private or cooperative storage companies need to be stimulated including a strengthening

of the warehouse receipt system which enables stock financing and thereby encourages the farmers to make use of these facilities as they can be paid for their crop.

- ✓ *Support extension services*: Agricultural extension is very weak, although in the on-going malt barley programmes agricultural extension is strengthened and appears to obtain results, this is not a structural solution as all these programmes are of a temporal nature. Therefor the government is encouraged to stimulate the development of appropriate agricultural extension services in combination with more applied research.
- ✓ *Strengthen contract enforcement*: Contract enforcement is weak; many farmers practice side-selling. It is believed that this cannot be solved through legal action towards smallholder farmers. Therefore the government is encouraged to speak out more clearly on this issue and promote contract farming more actively. Traceability is becoming more and more important in every supply chain; this can be only achieved by shortening supply chains. Contract farming can play an important role in this. It should be reviewed whether a licensing system can be established for local collectors and traders in other to get better control and reduce undesired effects of the many informal trader and collectors.
- ✓ *Stimulate access to finance*: In order to support the development of malt barley value chain, financing is very crucial. The major financing required are input finance, output /working capital finance, asset finance (storage capacity, machineries etc) and warehouse receipt finance.

2.9 Engagements with Smallholders through Contract Farming

Contract farming in particular is currently seen as a key inclusive business model in many PPP strategies launched in recent years under the G8's New Alliance for Food Security and Nutrition, which is a shared commitment to achieve sustained and inclusive agricultural growth and raise 50 million people out of poverty over the next 10 years (ActionAid Report, 2015; New Alliance, 2012). Contract farming, weather formalized or informal, can operate as a viable business model to incorporate small-scale farmers into value chains and through the contractual arrangements enable these farmers to access credit, seeds, technologies and markets. However, risks associated with contract farming are high transaction costs, reliance

on a single buyer, risks of indebtedness, late payment and side-selling. Some even state that contract farming is just another form of exploitation with limited equity impact, increasing socio-economic differences and transferring production risks to farmers (Miller and Jones, 2010; Da Silva, 2005; Eaton and Shepherd, 2001; Glover and Kusterer, 1990).

One country which receives much attention from the private sector, the public sector, and donors is Ethiopia. Over the last decade, Ethiopia developed a rather investor-friendly climate, attracting more than over a billion US dollars in 2015 compared to only 14 million US dollars in 1995 (The World Bank, (a), 2015). Foreign investors come from all over the world, but economic relations with the Netherlands in specific are strong as over 130 Dutch companies have started a business in the country since 2003. Most of these businesses are found in agriculture and horticulture. The Dutch and the Ethiopian government are increasingly working together in PPPs to strengthen their relations and to reach more developmental impact (Government of the Netherlands, 2016). Since 2013, the Dutch ministry of Foreign Trade and Development Cooperation has been collaborating with HEINEKEN on the CREATE project. This PPP also involves two Ethiopian Government institutes which are ATA and EIAR, and NGO named EUCORD. The project makes use of contract farming with about 20,000 farmers and aims to increase food security, improve the livelihoods of smallholder farmers, and reduces reliance on imports by developing local barley production and connecting farmers to HEINEKEN's supply chain in Ethiopia (Levy, 2014). Although contract farming has been practiced in the world for more than a century, contract farming in Ethiopia is a rather new phenomenon as it has been making its way in Ethiopia only for the last three to four years. This is mainly due to the privatization of former state-owned breweries to multinational companies such as HEINEKEN. The government is now planning to replicate the practice of contract farming to wheat producing farmers and agro-industries (Gessesse, 2015).

According to Wilson, A. (1990), new types of agricultural production and marketing can occur under many different types of institutional arrangements. These can include plantations or state farms, nuclear-plasma combinations of plantation and small-holdings, various land and labor sharing arrangements as well as traditional smallholder family farm

operations. The most common arrangement in both developed and developing countries is where land-owning farmers sell to local or city spot markets receiving prices that reflect purchasers' valuation of produce on the day based on quality and quantity. There are no overlapping contracts such as the purchaser providing credit and no forward pricing arrangements. However, there are alternatives to spot markets and these arrangements can be complex.

Forward integration can occur where a group of farmers own or control a marketplace or backward integration occurs where large processing and marketing firms either own farms or become directly involved in supporting and controlling production through contracts. The latter type of arrangement is called 'contract farming' and usually involves a large agribusiness firm integrating backwards by forming alliances with groups of smallholders and, through written or verbal contracts, providing farm inputs such as credit and extension in return for guaranteed delivery of produce of specified quality often at a pre-determined price. Such contracting arrangements may also involve horizontal integration where firms not only provide direct inputs into farm-level decision making but also encourage integration of various activities across a population of smallholders through farm groups. These groups may coordinate planting and harvest as well as facilitate or manage storage and transport arrangements.

There are probably as many types of contracts as there are contracted smallholders. However there are common elements that distinguish 'contract farming' from alternatives such as plantation farming, share farming and selling through local markets. Contract farming impacts on *marketing* of produce and usually at least one of the other three stages that comprise an agricultural micro-system: *input supply*, *production* and *processing*. The simplest contracts are usually restricted to some type of forward selling.

For example, Mangosteen producers in Bali receive an early season payment in return for assurances they will deliver the harvest to particular exporters who pay them the balance of the prevailing market price at delivery time. Other contracts are more complex. East Javanese seed corn producers' contract with a multi-national seed firm using contracts that

include quality and quantity clauses, provision of credit and require meetings of the farmers' group with firm extension officers to learn about seed crop management.

These smallholders are tightly controlled in their use of fertilizers and pesticides and other management decisions such as planting density and timing of planting and harvest and the types of companion crops that are allowed. A smallholder's decision to enter a contract and his or her successful participation in it will lead to an improvement in welfare in terms of increasing income, reducing risk exposure or gaining social prestige. If this were not the case, farmers would 'opt out' of contracts and return to traditional farming. While there is evidence some farmers do opt out of contracts and some contracts fail, there is also evidence of smallholders participating in contracts over many years (Runsten, 1992). According to him, the main driver in improving in welfare is enhanced profitability.

At an operational level within contracts, increased profits arise from:

- *Improved Access to Markets:* Contracting agribusiness firms can achieve size economies in accessing international markets. Contracting allows the advantages of these economies to be conferred on smallholders who often find that local spot markets for these products are thin or simply missing.
- *Improved Access to Credit and Farm Inputs:* Many smallholders are credit constrained and hence do not have access to farm inputs needed to undertake new enterprises. Agribusiness firms usually include forward payments or provision of inputs in contracts to overcome this problem.
- *Better Use of Technology:* Contracts are often written for products that are new to the smallholder and have tight quality requirements. In the absence of a contract, smallholders would face high costs in gathering technical and market information. The agribusiness firm often has a stockpile of such information and can achieve economies to size in providing information to many smallholders.
- *Better Management of Risk:* Contractors may facilitate risk bearing by providing start-up capital or assistance, operating cash and inputs, forward payments for farm inputs and forward price guarantees. In addition, adoption of contract farming may result in

diversification of farm activities. Contracting agribusiness firms may also provide extension services leading to reduced yield risk.

- *Farm Family Employment:* Smallholders benefit from additional employment opportunities arising from contracts since they often face high transaction costs when selling labor off the farm. In the early development literature this was referred to as the 'hidden unemployment' problem and explained in terms of seasonal patterns of labor demand. As discussed before, de Janvrey, Fafchamps and Sadoulet (1991) explain this type of unemployment in terms of shadow prices and underlying transaction costs. Farm contracts provide a way to minimize some of these costs because HVF production is usually labor intensive, reflecting both its horticultural nature and contractor requirements for high quality. Thus, farm contracts are an important source of employment for farm family members that otherwise would have limited work opportunities.

According to Bellemare, M.F. 2015, as every self-respecting economics major knows by the time he graduates, whether a country benefits from international trade depends in theory on whether that country specializes in its comparative advantage—for example, whether it can specialize in the production of goods or services for which it has a lower opportunity cost. The production of agricultural goods being the comparative advantage of most developing countries, it follows—again, in theory—that those countries should specialize in agriculture. But what does it mean to specialize in agriculture? For many developing countries, whose agricultural sectors are characterized by relatively primitive production technologies, specializing in agriculture necessarily means modernizing their agricultural sector, a move away from a situation wherein many smallholder farmers each produce several crops, primarily for their subsistence and using a relatively primitive technology, toward a situation where few larger producers each produce one or two crops for the market using modern technology. It also means moving from a situation where the many transactions required to bring agricultural commodities from producers to consumers take place on spot markets to a situation where those same transactions take place within more vertically integrated value chains. In other words, modernization implies that fewer transactions are necessary to bring a commodity from the same producer to the same consumer.

Consequently, policy makers in developing countries and in international organizations have come to see contract farming and agricultural value chains as key areas of policy intervention. But in order for developing countries to tap into their comparative advantage by modernizing their agricultural sector, it will be necessary for smallholder farmers to actually want to participate in contract farming. So what are the reasons why those smallholders might want to participate in contract farming? And in light of recent evidence, do those reasons actually drive participation in contract farming?

Grosh (1994) was the first to lay out the reasons why, in principle, smallholder farmers in developing countries might want to give up the apparent freedom of producing crops for themselves and their families or for selling at market in favor of producing crops—often different ones—for others within the context of highly regimented contracts. Some of the potential Advantages to contract farming are indicated as follows;

- ☞ *Risk and Uncertainty*: Producing crops outside of a contract farming arrangement and for sale at market often means that a farmer is unsure of the price he will receive once he gets to market. This is especially so in developing countries, where such price risk and uncertainty is often more important than in developed countries, which can cause serious welfare losses (Bellemare, Barrett, and Just, 2013). In contract farming arrangements, however, it is often the case that the agreement between the grower and the processor specifies a price at which the crop produced under contract will be purchased by the processor from the grower, which eliminates price risk. In Bellemare (2012), for example, contracts almost always specified a fixed price to be paid by the processor to the grower.
- ☞ *Imperfect Factor Markets*: Economic underdevelopment is often the result of fragmented or missing markets. For example, because of credit rationing due to imperfect information (Stiglitz and Weiss, 1981), a smallholder farmer may not be able to secure a loan which would allow him to make the required investments to adopt a new production technology. In contract farming arrangements, however, it is often the case that the processor advances inputs which would otherwise be difficult or impossible for the grower to obtain, and the contracted crop is used as collateral. In Bellemare (2012), for

example, seeds, pesticides, and fertilizer were often provided by the processor to the grower, and the contracted crop was used as collateral.

- ☞ *Extension Services*: The public provision of extension services is often lacking in developing countries and, as part of contract farming agreements, processors often provide their own private extension services. Those private extension services are often more trusted by farmers than are public extension services. Bellemare (2010) found that yields are positively and significantly related to the number of such private extensions visits to the grower by a technical assistant working for the processor.

Yet, contrary to what many economists and policy makers often seem to believe, contract farming arrangements are not a panacea. For one, contract farming is not easy to set in motion in places where it did not emerge organically. Moreover, contract farming is difficult to "make work," as it often brings its share of problems and is thus unsustainable because one or both parties end up dissatisfied. Contract farming can give rise to the following issues:

- ☞ *Monopsony*: It is often the case that the crop grown by smallholder farmers in the context of a contract farming agreement is a crop for which there is little to no local demand. In West Africa, for example, cotton is often produced within agricultural value chains that are entirely owned by the state, who is the sole cotton buyer in the country (Elabed et al., 2013). In such relationships, where there is practically no market for the contract crop outside of the contract, the processor often abuses its monopsony power by reneging on the terms of the contract, by underpaying growers, by delaying payment, and so on. In an edited volume with the evocative title of *Living under Contract*, Little and Watts (1994) present several cases where contract farming failed to fulfill its promises.
- ☞ *Contract Rigidity*: Because of the specific quality requirements of consumers and the sanitary requirements of regulators in export markets, contract farming arrangements in developing countries are often much more rigid than production outside for one's own consumption or for sale at market. Inputs have to be applied in specific quantities and proportions, specific tasks have to be performed at specific times, and specific techniques or implements have to be used. This often

comes at great cost to smallholder farmers who are used to being their own bosses and producing according to their own schedules. More commonly, the opportunity cost of following a rigid production contract is the production of staples for one's subsistence.

- ☞ *Leakage or Side Selling*: This is the flipside of monopsony power. In cases where there is a local market for the crop produced under contract, it is not uncommon for the contracted price to be lower than the local market price come harvest time. In such cases, it might be tempting for growers to sell some of the contracted crop on the local market at a higher price, claiming this as a loss. Whereas the exercise of monopsony power is opportunistic behavior on the part of the processor, side selling—what Fafchamps (2013) refers to as "leakage"—is opportunistic behavior on the part of the growers. Minten, Randrianarison, and Swinnen (2009) relate an anecdote wherein rampant inflation in Madagascar led to mass leakage among the growers they studied.

How does contract farming play out in practice? A collection of empirical country studies and reviews of this literature (Bijman, 2008, and Oya, 2012) offer some insights. Does contract farming make smallholder farmers better off? The question is not new, at least not when one looks outside of agricultural and applied economics to consider the social sciences as a whole. Goldsmith (1985) reviews a number of case studies of contract farming in Africa, Asia, and Latin America, and finds that in the majority of cases, the income of growers is greater than that of non-growers. Moreover, he finds that participation in contract farming is associated with the adoption of better production technologies. Singh (2002) also compares contract farming arrangements in the Indian state of Punjab, and he also finds that those smallholder farmers who participate in contract farming have higher incomes.

The issue with both studies by Goldsmith (1985) and Singh (2002), however, is that they ignore the fact that it is entirely possible that those smallholders who elect to participate in contract farming may have already been better off than those smallholders who elect not to participating in contract farming prior to their participation. This is known as the selection problem, and not only does it threaten the internal validity of empirical findings, it is also

challenging to address in practice. Warning and Key (2002) were the first to attempt to deal with the self-selection of growers into contract farming in a study of peanut contract farming in Senegal, and they find that participants in contract farming did, indeed, have significantly higher incomes than nonparticipants.

Another common issue in the literature on contract farming is the lack of external validity. That is, researchers tend to focus on a single crop or on a single region, with little to no implications for other crops or regions. Simmons, Winters, and Patrick (2005) were the first to aim for more external validity by looking at three contracted commodities—maize, poultry, and rice—in three different locations in Indonesia, and they find that those households who participated in contract farming as poultry breeders and maize growers had better returns to capital than nonparticipants. Likewise, Miyata, Minot, and Hu (2007) looked at apple and onion contract farming arrangements in China, and found that participation in contract farming was associated with higher incomes.

Aiming for external validity, Bellemare (2012) studied contract farming over more than 10 contracted crops across six regions of Madagascar. Using field-experimental methods to deal with the selection problem, he found that contract farming appeared to lead to a 10-percent increase in income. Yet even those field-experimental methods are not immune from criticism, and they do not guarantee the identification of causal effects from contracting farming.

The bulk of the evidence suggests that participating in contract farming improves the welfare of those who choose to participate (Wang, Wang, and Delgado, 2014). Yet because the identification problem—correlation is not causation—remains as thorny as ever, one has to keep in mind the distinct possibility that publication bias has molded what we know of the welfare impacts of contract farming. Null findings—in this case, findings that show no association between participation in contract farming and welfare—tend not to get published. Findings that tend to go against the dominant view—in this case, findings that would show a negative association between participation in contract farming and welfare—are perhaps even more difficult to publish than findings of no association. Hence, the

publication process might lead to a surfeit of findings showing a positive association between participation in contract farming and welfare.

The study of Agri-Profocus in Ethiopia (2015) indicated the potential benefits of contract farming and viewed from three perspectives – farmers, firms and system perspectives.

Some of the key benefits of contract farming for farmers and the reasons or motives of farmers to participate in a contract farming scheme are as follows;

- ✓ Their principle benefit is that they have a secured market for their product.
- ✓ Next to that, farmers often get support on one or more of the production factors:
    - o Access to (high quality and/or cheaper) inputs, tools and technology
    - o Access to relevant knowledge, information and skills
    - o Access to finance in the form of an advance or a loan.
- ✓ Better prices (higher or more stable) and more secure payments
- ✓ Lower transport costs for inputs and outputs

The principle benefit quite often is the main one: as marketing costs for smallholders can easily be 10% or more of the price, having a secured market is a substantial benefit. The improved access to the production factors can be substantial as well. Farmers can save on transport costs of inputs and they can benefit from better quality inputs as well as from better trained and more specialized extension workers. Access to finance is always very welcome in cash stripped rural households.

Indeed many smallholders are eager to participate in a contract farming scheme. Yet there are, logically, also some less attractive aspects. The basic one is that the farmers become dependent on a single firm in terms of inputs and outputs; this is especially risky when the firm is the sole buyer and the production cycle is long; e.g. in out-growers schemes of tea, sugarcane or fruit.

And the driving forces for firms to set up a contract farming system are both commercial and social motives. The principle commercial benefit is a steady and reliable supply of quality produce. Other commercial driving forces can be one or more of the following:

- ✓ No need to invest in land and land-related assets that only bring returns in the long run, like irrigation and plantations of perennial crops
- ✓ Price and supply risks are limited and well known beforehand
- ✓ No need to manage a large labor force but rather use the intimate knowledge and skills of farmers about their land, the crops, the climate etc.
- ✓ Local sourcing reduces the need for foreign currency which is attractive for both the companies and the government.

The first one is a powerful motive, especially for foreign investors. To set up a processing factory and developing an (export) market is a huge challenge, and very costly. To start an own production system at the same time is complicated, time consuming and costly. Worldwide smallholders are very efficient in turning limited external inputs in a maximum of output. They attend their fields, rotate crops, protect their land and go the extra mile when things go wrong. The efficiency allows them to produce relatively cheap. Most firms would simply not be able to compete with them in terms of production costs; especially if a firm needs only one crop out of a rotation. Firms can also engage in contract farming as part of their CSR strategy. They want to support the livelihood of smallholders. One element of this is a premium price for farmers. Via certification systems like 'Fair Trade' they will get this premium back from the final customers.

When we look at from a system perspective, a well-functioning contract farming system leads to lower transaction costs and a more efficient supply chain. This should be translated in a win-win situation for both the firm and the farmers.

The potential impact on smallholders can be a higher and a more secure and stable income due to:

- ✓ Lower fixed costs (e.g. equipment) and/or variable costs (e.g. inputs)
- ✓ Increased yields due to better inputs and better crop husbandry

- ✓ Better prices due to better quality produces and premium price
- ✓ Lower transport- and other transaction costs for inputs and outputs

In principle the price of a produce goes down as a more efficient production system leads to a lower cost price. For firms this is what they need. For farmers this is good as well, as the lower price is more than compensated by higher yields. In the long run this is a win-win as the lower price makes the whole value chain more competitive which is beneficially to actors in the chain.

The benefits for firms are a better coordinated supply chain: better quality and a reliable supply. On the financial side they benefit from a lower need to invest in land and land related assets. This also reduces their exposure to production risks. Whether the potential benefits of contract farming depends much on the efficiency of the interaction between firms and farmers. We use the word ‘interface‘, to describe this interaction. How do the firm and the farmers communicate, plan, and organize the work to be done? How are inputs distributed? How are outputs consolidated, inspected, transported etc.? In Ethiopia cooperative unions often play a crucial role in this; they are generally responsible for quality control, efficient communications and logistics and for organizing a reliable payment system. It can however also be done by private players like lead farmers or rural entrepreneurs or by informal groups.

CHAPTER THREE

3. RESEARCH DESIGN AND METHODOLOGY

This section describes study areas, research design, sampling methods, and data processing and analysis that were used during the data collection at the study areas. Choosing appropriate research design reflects decision on the priorities being given to the research process. For this particular study, a descriptive research design is employed. Descriptive research is marked by prior formulation of a specific research questions. The researcher already knows a substantial amount to the specific research problems before the project is initiated.

As the researcher has been working for HEINEKEN Ethiopia and EUCORD with the capacities of Local Sourcing Manager and CREATE Project Leader, the role of smallholder farmers in the import substitution and industrialization of Ethiopia is described well both quantitatively and qualitatively. The research described the challenges and opportunities of working with smallholders, company's perspectives, smallholders as business partners, smallholders' performance in comparison with large farms, role of malt barley producers in the import substitution and industrialization, and views of other chain actors, chain supporters and chain enablers is described well.

3.1 Research Design

Orondo (2003) defines research design as the scheme, outline or plan that is used to generate answers to research problems. Therefore, non-experimental research design is used in this study. Since the nature of the proposed study requires gathering and analysis of vast data from households, the study employed cross sectional design, which allows collection of large amount of data at one point in time.

3.2 Description of the Study Area

The study is conducted in three Zones of Oromia National Regional State which are dominant malt barley growers (More than 45%) in the country. These are Arsi, West Arsi and Bale Zones.

Arsi is one of the zones of the Oromia Region in Ethiopia. Arsi is bordered on the south by Bale, on the southwest by the West Arsi Zone, on the northwest by East Shewa, on the north by the Afar Region and on the east by West Hararghe. The highest point in Arsi is Mount Chilalo; other notable mountains in this zone include Mount Kaka and Mount Gugu. The administrative center of this zone is in Asella; other towns in this zone include Abomsa, Assasa, Bokoji, Sagure, Kersa, Dhera, Etaya, Arsi Robe, Huruta etc.

The 1994 national census reported a total population for this Zone of 2,217,245 in 438,561 households, of whom 1,105,439 were men and 1,111,806 women; 216,413 or 9.76% of its population were urban dwellers at the time. According to a May 24, 2004 World Bank memorandum, the average rural household has 1.2 hectare of land and the equivalent of 1.1 heads of livestock. 16.5% of the population is in non-farm related jobs.

West Arsi is one of the zones of the Oromia Region in Ethiopia. Based on the 2007 Census conducted by the Central Statistical Agency of Ethiopia (CSA), this Zone has a total population of 1,964,038, of whom 973,743 are men and 990,295 women. 272,084 or 13.85% of population are urban inhabitants. A total of 387,143 households were counted in this Zone, which results in an average of 5.01 persons to a household, and 369,533 housing units. The two largest ethnic groups reported in West Arsi were the Oromo (88.52%) and the Amhara (3.98%); all other ethnic groups made up 7.5% of the population. Oromiffa was spoken as a first language by 87.34% and 6.46% spoke Amharic; the remaining 6.2% spoke all other primary languages reported.

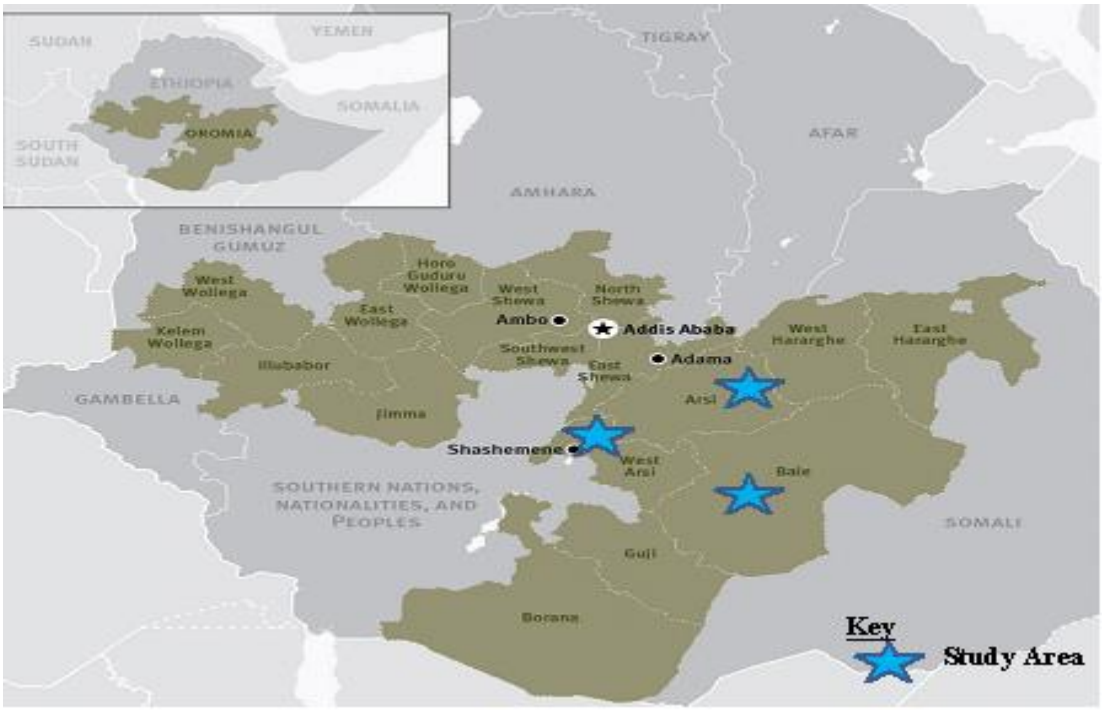
The majority of the inhabitants are Muslim, with 80.34% of the population having reported they practiced that belief, while 11.04% of the population professed Ethiopian Orthodox Christianity and 7.02% of the population professed Protestantism.

Bale is one of the zones in the Oromia Region of Ethiopia. Bale is named for the former kingdom of Bale, which was in approximately the same area. Bale is bordered on the south by the Ganale Dorya River which separates it from Guji, on the west by the West Arsi Zone, on the north by Arsi, on the northeast by the Shebelle River which separates it from West Hararghe and East Hararghe, and on the east by the Somali Region.

Based on the 2007 Census conducted by the CSA, this Zone has a total population of 1,402,492, an increase of 15.16% over the 1994 census, of whom 713,517 are men and 688,975 women; with an area of 43,690.56 square kilometers, Bale has a population density of 32.10. While 166,758 or 26.20% are urban inhabitants, a further 44,610 or 3.18% are pastoralists. A total of 297,081 households were counted in this Zone, which results in an average of 4.72 persons to a household, and 287,188 housing units. The three largest ethnic groups reported were the Oromo (91.2%), the Amhara (5.7%) and the Somali (1.44%); all other ethnic groups made up 1.66% of the population. Oromiffa is spoken as a first language by 90.46%, Amharic was spoken by 7.11% and Somali by 1.05%; the remaining 1.38% spoke all other primary languages reported. The majority of the inhabitants are Muslim, with 81.83% of the population having reported they practiced that belief; while 16.94% of the population professed Ethiopian Orthodox Christianity and 1.04% were Protestant.

Ethiopia's major staple crops include a variety of cereals, pulses, oilseeds, and coffee. Grains are the most important field crops and the chief element in the diet of most Ethiopians. The principal grains are teff, wheat, barley, corn, sorghum, and millet. The first three are primarily cool-weather crops cultivated at altitudes generally above 1, 500 meters. Barley is grown mostly between 2,000 and 3,500 meters. A major subsistence crop, barley is used as food and in the production of *tella*, a locally produced beer and for breweries as malt. Arsi, West Arsi and Bale are the major producers of malt barley.

Figure 8: Map of the Study areas



The three zones are agro-ecologically the home of barley production in general and particularly malt barley production has been introduced to the area since very long.

According to IFPRI study (2015) there are also spatial variations in barley production and area coverage. Most of the barley productions take place in the highlands of the Oromia and Amhara regions. From 2003-2013, these two regions accounted for about 83 percent of the total barley production (52 percent in Oromia and 31 percent in Amhara), while Tigray and SNNP region represent only 9 and 8 percent of the total barley production, respectively.

The Woreda-level production estimates indicated that barley production is concentrated in a handful of woredas in the highlands of Oromia and Amhara regions. Twenty-three out of the top 24 top woredas are located in these two regions. More importantly, most of the woredas are from Arsi, West Arsi, Bale and West Shewa zones of Oromia region and North Shewa and North Gondar zones of Amhara region. While Tigray has only one Woreda among the top 24 (in Southeast Tigray), there are no woredas in the top 24 from SNNP. Second,

roughly 33 percent of the total barley production, and perhaps the bulk of the marketable surpluses, are generated in these 24 locations.

3.3 Data Gathering Procedures and Instruments

Universe of the study is smallholder malt barley producers in Arsi, West Arsi and Bale Zones of Oromia National Regional State. These producers are organized under unions, cooperatives, model farmers/Nucleus farmers and other informal groups supported by support providers and work in a contractual relation with Breweries and Maltsters for the production and supply of malt barley. They trade through these organizations to the Breweries and Maltsters.

Hence, the researcher first identified the aggregators/suppliers (Unions, coops, model/Nucleus farmers and informal groups) in the three zones) in a balanced and representative way. These aggregators were selected randomly and then 150 smallholder farmers were drawn through purposive sampling technique from the three zones.

Given the fact that these farmers have similarity in terms of ecology and activities they undertake, purposive sampling method was used. A total of 50 smallholders from each of the three zones were selected which in total is 155 smallholders (Arsi Zone = 60, West Arsi = 55 and Bale = 40). There are about 25,000 smallholders working with key malt barley buyers (HEINEKEN, AMF and DIAGEO) in these areas and the researcher purposefully picked a representative sample of farmers. Several factors have been considered in the selection of sample size such as; the purpose of the study, population size, and the level of precision, the level of confidence or risk, economic status and gender. Time and cost justifies this choice because large sample increases time and cost for the study while the time and cost for this study is limited. Purposive sampling (extreme case sampling) was used to enable the selection of respondents with the best attributes regarding malt barley production, working with companies in contractual relations and in the process of commercialization.

Of the 155 questionnaires, 150 questionnaires were returned filled, of which five were not properly filled. Hence, the total number of respondent are found to be 150 (97%). Therefore, the survey analysis and report has covered the views collected from 150 respondents (household leaders). Customized interview checklists were used to have the opinions of different stakeholders working with smallholder malt barley growers.

3.4 Sources of Data and Collection Methods

Both primary and secondary data were used in this study. Primary data was collected through questionnaires, interviews, focus group discussions, market visits and observations. Interviews were used to collect firsthand information from respondents. Interview was useful because it provided firsthand information and it enabled face to face encounters with respondents. Moreover, the purpose of the interview was to probe the ideas of the interviewees about the phenomenon of interest.

Both open and close ended questions were used to collect data. In total 155 questionnaires were administered and 150 properly filled and collected back. The use of questionnaires with open ended questions allowed respondents to be free in giving out their views about the subject matter.

Primary data was collected from selected malt barley growers, Malt Barley growers' organizations (cooperatives, Model/Nucleus farmers and unions), Breweries (HEINEKEN and DIAGEO), Maltsters (AMF and GMF), appropriate government staffs, NGOs staff (EUCORD, HUNDEE), ATA/OACC, Research Centers (Kulumsa and Holeta), MFIs (Busa Gonofa and Harbu), Seed Enterprises (OSE) and banks (CBO). Focused group discussion was administered to six groups of 5-10 people (2 FGD per zone). This method was used to validate and compare the information collected using other methods and to get group opinions compared to individuals responses.

Secondary data was gathered from documented and published sources including books, journals, CSA reports, ERCA Reports, internet, government reports and other publications.

The researcher obtained secondary data from related literature such as past researches, regional agriculture departments documented books, government and sector reports, websites, annual reports, journals and agricultural reports, books and on line databases was used. In addition, the researcher explored various documents such as articles, magazines and text books. Moreover, price and quality data was collected from primary market centers, Oromia Market and Development Organization, malt barley import data, Ethiopian Grain Trade Enterprise and selected traders.

3.5 Data Processing and Analysis

In the process of analyzing data, the key variables for analysis were identified. The quantitative data was scrutinized, summarized, verified, edited and arranged. The data was summarized on the data summary sheet and followed by data editing, coding, verification and encoding into the computer. For designing the data table, variable definition and generating data, the help of two senior lecturers of Addis Ababa were used.

The data was analyzed with the appropriate statistical tools (IBM SPSS Statistics Version 23) based on the level of measurement of the variables involved. The statistical tools that were used to analyze the date include simple descriptive statistics such as frequency, mean, percentage, standard deviation and test of associations.

Data processing was done to make sure that the collected data were accurate, consistent with other facts gathered, uniformly entered, and have been well arranged to facilitate coding and tabulation. In this study, both descriptive methods of data analysis were used in order to establish the link between malt barley production and commercialization and its effects import substitution.

CHAPTER FOUR

4. PRESENTATION AND ANALYSIS OF DATA

4.3. Introduction

This chapter deals with the presentation and analysis of data. The chapter begins with the presentation of demographic data of respondents such as age, sex, education level, marital status, head of the family and size of the family; it is followed by the discussion of data collected to answer the intended research objectives. The key analysis revolves around the role and contribution of smallholders to the import substitution and industrialization of Ethiopia. It also looks at the supports required, key challenges, opportunities and future direction to engage and equip smallholders to be a real business partners with the industry.

The section also covers general views and perceptions of key informants and FGD discussants such representatives of Breweries, Maltsters, Seed Multipliers, NGOs, Government Extension workers, Private Companies etc.

4.4. Socio-Demographic Background of the Respondents

The study was conducted in three Zones of Oromia National Regional State – Arsi, Bale and West Arsi Zones which are the major malt barley producers in the regional and in Ethiopia in general. About 59 (39.3%), 38 (25.3%) and 53 (35.3%) respondents were included in this study from Arsi, Bale and West Arsi Zones respectively. Nine malt barley producing woredas (25 kebeles) were included. These are Adaba, Digalu Tijo, Goba, Honkolo Wabe, Kofale, Kore, Lemu Bilbilo, Sinana and Tiyo Woredas.

As indicated in the below table, 95% of the respondents indicated that the head of the household is male while the remaining 5% indicated that the head of the household is female. Regarding their marital status, 97% of them are married and 1% and 2% are divorced and widowed respectively.

The finding also indicated that majority (95%) of the respondents fall under the productive age category while only 5% of the respondents are under the unproductive age category. This is a potential for further promotion and development of malt barley in the study areas.

The below table also indicates about 80% of the respondents are literate (Amharic and Afaan Oromo) while only small percentage (20%) fall in the illiterate category. This is a good opportunity for promotion of modern agriculture, mechanization and working with the industry as business partners. Regarding the family size of the respondents, about 70% of them have family size greater than or equal to six. More than 99% has more than three family members and the average family size for the whole respondents is 7.37 (4.05 male and 3.32 female) which is really larger family size as compared to 5 of average family size for the three zones according to the 2007 Population and Housing Census. If this trend of having large family size continues, this might compete with the farmers' capacity to produce for the market.

Table 9: Characteristics of Respondents

Variable	Category	Frequency	Percentage
Head of Household	Male	142	95%
	Female	8	5%
	Total	**150**	**100%**
Age	≤ 18	0	0%
	19 to 29	16	11%
	30 to 64	127	85%
	> 64	7	5%
	Total	**150**	**100%**
Educational Status	Illiterate	30	20%
	≤ Grade 6	49	33%
	Grade 6- 8	43	29%
	> Grade 8	28	19%
	Total	**150**	**100%**
Family Size	≤ 2	2	1%
	3 to 5	43	29%
	6 to 7	40	27%
	8 to 10	48	32%
	> 10	16	11%
	Total	**149**	**100%**
Marital Status	Married	146	97%
	Single	0	0%
	Divorced	1	1%
	Widowed	3	2%
	Other	0	0%
	Total	**150**	**100%**

4.5. Malt Barley Production Information

This section gives information related to land ownership, malt barley production and productivity, marketing and unit price trend over the last five years. Moreover, it looks at the household income, the contribution of malt barley for household income and competitiveness of malt barley compared to other competing crops.

4.5.1. Land Ownership and Household Income

The study indicated that more than 67% of the respondents have greater than 2 hectares of land. Most of the respondents (51%) fall between 2-4 hectares. This is also confirmed by the heads of Agriculture Department of the three zones. Land holding is a bit higher in Bale area followed by West Arsi and finally Arsi Zones. It was also confirmed that out of the total land holding; about 0.55 hectare on average is grazing land. In addition to this, farmers also practice renting and leasing out of land. The study find out that the respondents on average rented about 0.6 hectares and leased out on average about 0.05 hectares.

The majority of the respondents (57%) indicated that they have higher income above 70,000 Birr while only 7% are earning less than 20,000 Birr. This shows that the study areas are surplus producing and is an ideal place to promote commercialization of smallholders towards import substitution and industrialization. For almost all (98%) of respondents, the sources of income is from farming (crop and cattle) while very few percentages of the respondents get their income from trading and labor selling. This shows mixed farming is highly practiced in the study areas and one has to consider both while designing any developmental interventions in those areas.

Table 10: Land Ownership, Annual Household Income and Sources

Variables	Categories	Frequency	Percentage
Land Ownership	< 1 Hectare	14	9%
	1 to 2 Hectares	36	24%
	2 to 4 Hectares	76	51%
	4 to 6 Hectares	19	13%
	≥ 6 Hectares	5	3%
	Total	**150**	**100%**
Annual Household Income	< 20,000 Birr	10	7%
	Between 20,000 and 30,000 Birr	17	11%
	Between 30,000 and 50,000 Birr	25	17%
	Between 50,00 and 70,000 Birr	12	8%
	> 70,000 Birr	85	57%
	Total	**149**	**100%**
Main Sources of Income	Farming	146	98%
	Farming and Labor	1	1%
	Farming and Trading	2	1%
	Total	**149**	**100%**
Animals owned	Beehives	28	1%
	Cattle	1,066	38%
	Chicken	391	14%
	Equines	271	10%
	Shoats	1,077	38%
	Total	**2,833**	**100%**

All the respondents own animals though the quantity and types vary. About 86% owns cattle, shoats and equines which is significant number.

4.5.2. Major Crops Grown in 2015/16, Size of Land and Purposes

The below cross- tabulation presents the major crops grown by farmers in 2015/16 planting season in the study area and size of land allocated for these crops. The size of land allocated to these crops also indicated how much farmers consider this crop as their priority crop. All respondents indicated malt barley as their major crop planted in the 2015/16 planting season. They also allocated significant amount of land for malt barley. Majority of the respondents (50%) allocated one and more than one hectares of land for malt production in the indicated planting season.

Table 11: Cross Tabulation of Crops Grown and Size of Land

Categories			Size of Land (Hectares)				
			< 0.25	0.25 - 0.5	0.5 - 0.75	0.75 - 1	≥ 1
Major types of crops grown in 2015/16 planting season	Beans	Count	29	28	5	15	2
		%	19%	22%	13%	12%	3%
	Food Barley	Count	7	17	3	10	3
		%	5%	14%	8%	8%	5%
	Horticultural Crops	Count	30	12	3	3	0
		%	20%	10%	8%	2%	0%
	Malt Barley	Count	27	32	19	42	33
		%	18%	26%	48%	33%	50%
	Oil Crops	Count	9	13	3	8	0
		%	6%	10%	8%	6%	0%
	Other Crops	Count	43	13	2	0	0
		%	29%	10%	5%	0%	0%
	Wheat	Count	6	10	5	50	28
		%	4%	8%	13%	39%	42%

Table 12 below is comparing and helps to understand the reasons for which farmers are producing these major crops – for food, market or for both. About 75% of the respondents indicated that they produced malt barley purely for market, only 1% produced purely for food and 24% produced for both purposes. It was also confirmed that more than 95% of the respondents are producing the new varieties (Traveler and Grace) purely for market. The FGD discussants also confirmed that due to their good quality (grain size, starch content, varietal mixture, etc) these varieties are highly demanded by the Breweries and Maltsters and hence helped farmers to fetch higher income.

Table 12: Major Crops Grown and Purposes

Categories	Food		Market		Market and Food		**Total**	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Malt Barley	1	1%	113	75%	36	24%	150	100%
Food Barley	24	60%	3	8%	13	33%	40	100%
Wheat	6	6%	1	1%	92	93%	99	100%
Beans	3	4%	44	56%	32	41%	79	100%
Oil Crops	0	0%	31	94%	2	6%	33	100%
Horticultural Crops	3	6%	23	48%	22	46%	48	100%
Others (Enset, maize, teff)	53	91%	0	0%	5	9%	58	100%

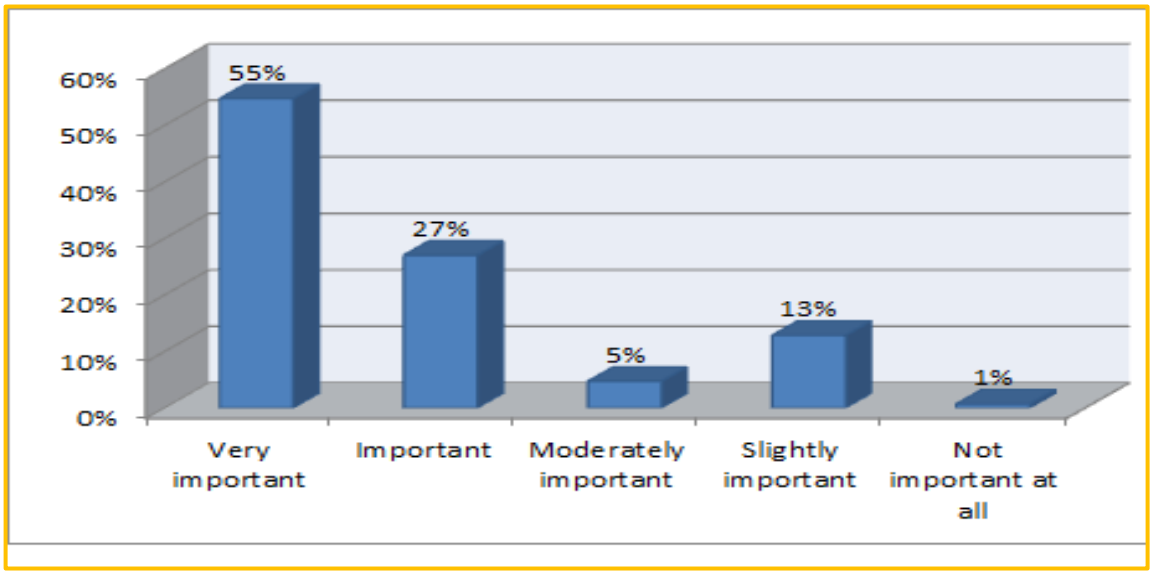
Almost all respondents (94%) indicated that they produce oil crops (Linseed, sunflower, rape seed etc) purely for market. Main food crops according to the study are Enset, maize, teff and wheat across the three zones. Especially 93% of the respondents indicated they produce wheat for both purposes.

4.6. Malt Barley Production and Importance

i. Malt Barley Production Trends and Its Importance as Sources of Income

In the below chart, 82% of the respondents indicated that malt barley is very important and important for their livelihood. This indicates that malt barley is in the core of their agricultural activity. For Arsi and West Arsi malt barley is really one of their top crops while in Bale area it is the second major crop next to wheat. The FGD discussants indicated that due to the declining productivity of the local varieties (Holker) farmers even stopped to produce malt barley (wheat is more productive than local malt barley). Currently due to the introduction of the HEINEKEN's new varieties, farmers started to produce malt barley (new varieties are gradually beating wheat in most of the areas).

Figure 9: Importance of Malt Barley as Sources of Income



The below tables and figures give an interesting comparison and trend of land covered with malt barley, calculated productivity, total harvested malt barley, volume sold to Breweries and Maltsters, unit price and volume consumed at home over the last five years.

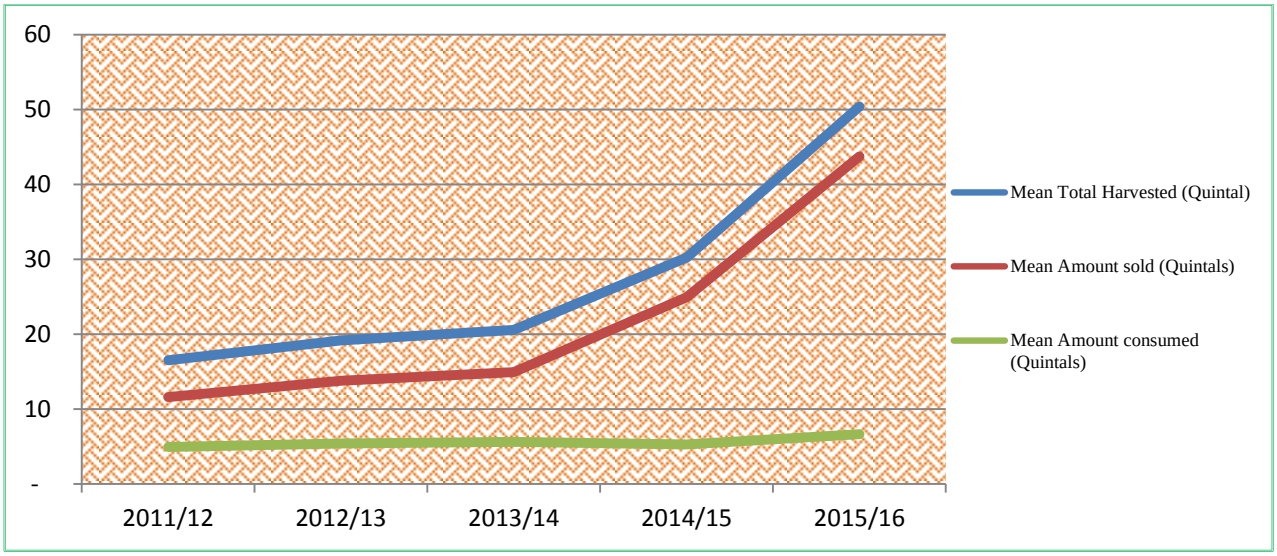
Table 13: Trends of Malt Barley Production, Marketing and Consumption

Variables	Measures	Years				
		2011/12	2012/13	2013/14	2014/15	2015/16
	N	103	114	135	144	147
Land Covered with malt barley (Hectare)	Minimum	0.13	0.13	0.13	0.13	0.13
	Maximum	4.00	4.50	6.00	7.00	10.50
	Mean	0.64	0.71	0.79	0.90	1.08
Productivity (Quintal/Hectare)	Minimum	13.33	12.00	10.00	10.00	10.00
	Maximum	40.00	45.00	52.00	80.00	84.21
	Mean	24	24	23	29	39
Total Malt Barley Harvested (Quintal)	Minimum	2.08	1.82	2.08	2.08	3.00
	Maximum	120.00	135.00	250.00	385.00	735.00
	Mean	17	19	21	30	50
Amount sold to Breweries and Malters (Quintals)	Minimum	1.04	1.18	1.41	1.46	2.63
	Maximum	115.00	130.00	220.00	375.00	700.00
	Mean	12	14	15	25	44
Unit Price (Birr/Quintal)	Minimum	350.00	400.00	700.00	600.00	800.00
	Maximum	1,000.00	1,000.00	1,000.00	1,518.00	1,300.00
	Mean	429.66	496.01	601.85	783.80	909.95
Amount consumed at Home (Quintals)	Minimum	1.04	0.64	0.67	0.62	1.00
	Maximum	21.00	30.00	58.50	40.00	40.00
	Mean	5	5	6	5	7

Note: 1 ton = 10 Quintals

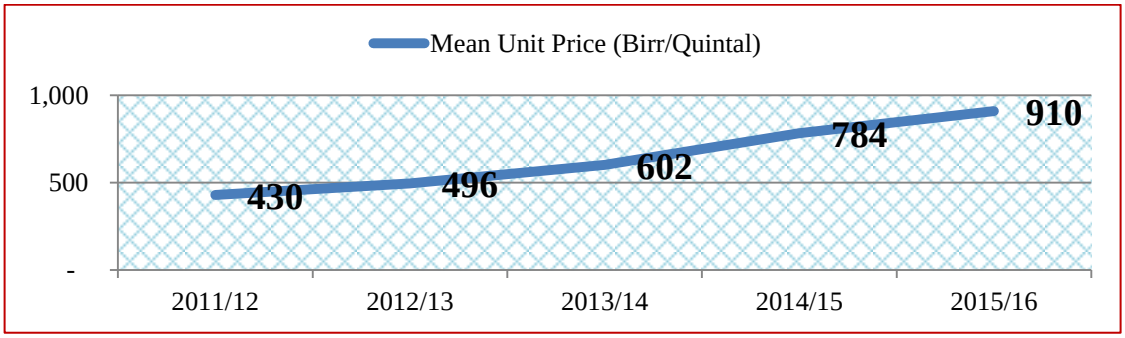
The below chart indicates the trends over the last five years. In the last two years total harvested and amount sold to Breweries and Maltsters has risen sharply while the amount of malt barley used for consumption at home slightly remain constant. This shows that due to the high price of malt barley, farmers sell it as commercial commodity and buy or use other crops for food. The reason for the sudden sharp rise for the amount sold to Breweries and Maltsters is due to the fact that HEINEKEN and DIAGEO actively engaged in the purchase of malt barley which was not the case before. The FGD and KII discussants also confirmed that malt barley (especially the new varieties) is produced mostly for the market.

Figure 10: Trends of Malt Barley Harvested, Sold and Consumed at Home



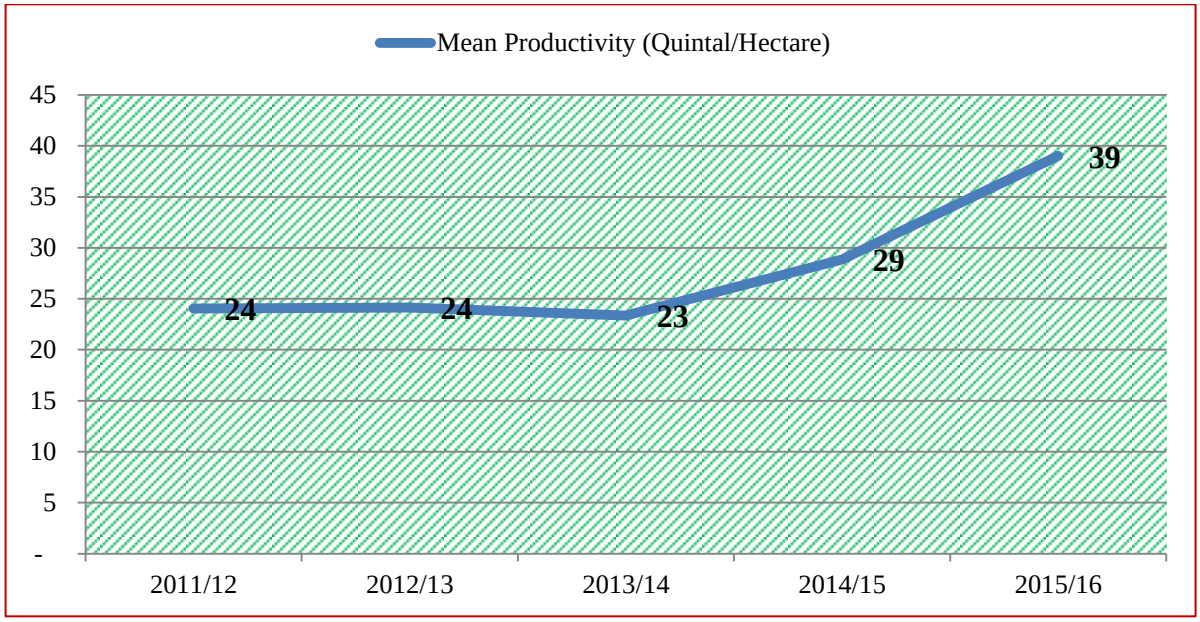
Another interesting trend is the increase of unit price over the last five years. Five years ago the price of a quintal of malt barley was around 430 Birr and in 2015/16 this rises to 910 Birr which is 112% increase. Before two years the only buyer was AMF and after two years the two breweries started to buy directly from their contracted farmers. The increase in beer production in Ethiopia over time has direct contribution to this increase in unit price. The rate at which malt barley production is growing does not balance the trend in the growth of beer production. In the below sections it is indicated that the mean total production cost for a quintals of malt barley is about 360 Birr and the selling price in 2015/16 reached 910 Birr. This indicates roughly farmers make about 60% profit on production of malt barley.

Figure 11: Trends of Mean Unit Price



The below chart indicates productivity increase over the last five years. For three consecutive years the rate at which productivity increased was very huge. The mean value for all malt barley varieties (Holker, Sabini, Traveler and Grace) produced in those three zones is 39 quintals/hectare. Between 2011/12 to 2013/14 there was no growth/very minor growth in productivity but after 2013/14 there was sharp increase in productivity. The reasons are due to the increase in beer production (and hence high demand of malt barley) government started to give attention to malt barley, PPP projects of breweries (EUCORD CREATE project of HEINEKN and TechnoServe project of DIAGEO) started to give intensive support for malt barley producer's (seed, training, financing, market access etc) in the three zones. The Regional Agricultural Commercialization of ATA also gave attention to the sector and there is regular quarterly review meetings and discussion among all major actors in the malt barley value chain.

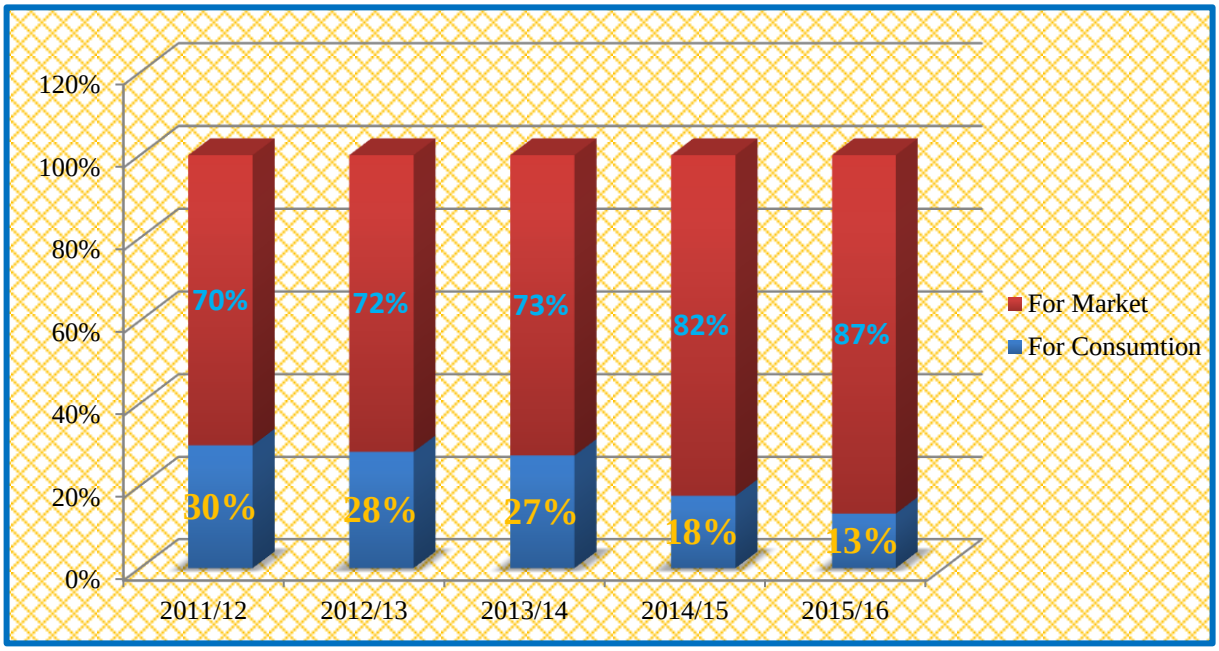
Figure 12: Productivity Trends of Malt Barley



The below figure indicates how the purpose of malt barley has changed over time. Five years ago, about 30% of the malt barley is used for household consumption and the remaining 70% is sold to the industry. This parentage has progressed significantly over the last five years and the current parentage is only 13% of the total produced malt barley is

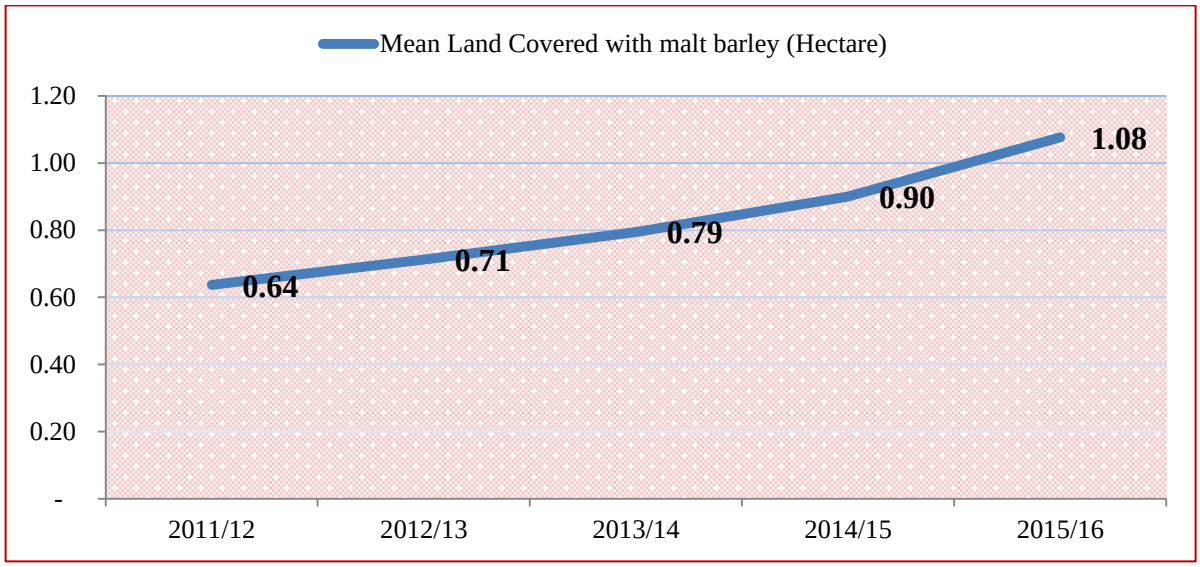
used for household consumption and the remaining 87% is sold to the industries (Breweries and Maltsters).

Figure 13: Changes in Purposes of Malt Barley Production



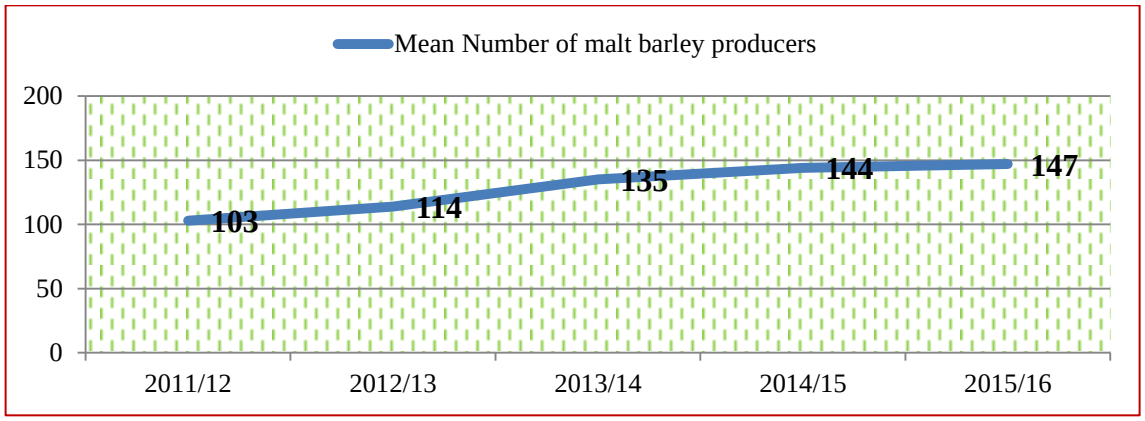
The below chart gives an idea of how the amount of land allocated to malt barley has increased over the last five years. Currently farmers in the three zones allocated on average one hectare for malt barley production which is about 69% increase over five years. The maximum land allocated grows from 4 to 10.6 hectares over the last five years while the minimum value remains the same throughout the years (0.13 Hectares). Looking at the rate at which total production grows and the rate of increase of land size allocated to malt barley production one can understand that the reason of total production increase is not due to allocation of more land but it is more from the increase in productivity per unit. The FGD discussant confirmed that the increase of land size to malt barley came from the shifting from other crops like wheat, beans and oil crops since there is no/limited new land to be allocated. Most of the farmers in the area practice crop rotation at least once in two years (Malt Barley → Beans/Oil Crops/Horticultural Crops → Malt Barley/Wheat).

Figure 14: Trends of mean land allocated for malt barley



From the below chart one can understand the trend in number of farmers who engaged in malt barley production. In 2011/12 out of the 150 respondents only 103 of them produced malt barley but in 2015/16 all of them produced malt barley (Three of them did not properly responded to the question and hence considered as missing). This is about 46% increase in five years. The major reasons put forwarded why farmers started to engage in malt barley production are availability of inputs (seed and chemicals), availability of pre-finance, availability of high demand and increase in productivity of new varieties (beating other competing crops).

Figure 15: Trends of Malt Barley Producers



ii. Determinant Factors to Enhance Production and Productivity of Malt Barley

The FGD and KII participants indicated that application of recommended and full extension packages is very essential to enhance production and productivity of any crops and especially with the new malt barley varieties. Full package includes activities starting from land preparation, timely and sufficient application of inputs, weed management, disease control, proper harvesting, storage and transportation. Farmers also agree with these points but they give more importance and priority for some aspects than others.

As indicated below, 52% of the respondents indicated that getting improved seed is the highest determinant factor to enhance production and productivity followed by land preparation and fertilization and weed management, training and extension support (25%, 13% and 6% respectively).

Table 14: Determinant Factors to Enhance Production and Productivity of Malt Barley

Categories	Frequency	Percentage
Improved Seed	78	52%
Land Preparation and fertilization	37	25%
Weed Management	19	13%
Training and Extension support	9	6%
Others (Weather condition, experience etc)	7	5%
Total	**150**	**100%**

iii. The Effect of Producing for Market on Household Food Security

Many members of the FGD and KII participants had the fear of contradiction between the current high demand of malt barley by the industries and farmers producing for food security. The fear emanated from the fact that if the price of malt barley keeps on increasing, farmers will shift from all other crops to growing malt barley.

From the below table one can see that 95% of the respondents indicated that producing malt barley for the market does not affect their food security/consumption. 85% of these

respondents have their own mechanisms to balance between the market and food security. That is through producing other food crops (Like wheat, food barley, maize, Enset etc) parallel to producing malt barley. These respondents strongly believe that farmers do not fully shift to one crop whatever the price and market is. Farmers by nature are implementing various risk minimization mechanisms among which producing various crops for various purpose is very common. Moreover, farmers cannot grow barley year after year and need to maintain soil heath, control disease and some weeds. Even some breweries in their extension package enforce crop rotation and put an article in their contracts with farmers.

Table 15: Producing for Market versus Consumption

Variables	Categories	Frequency	Percentage
Is producing for market affect your food security?	Yes	8	5%
	No	141	95%
	Total	**149**	**100%**
If "No", how to balance between food security and market	Produce other crops for food	118	85%
	Consume some portion of malt barley	3	2%
	Sell Malt Barley and buy food crops	18	13%
	Total	**139**	**100%**

Those who replied that producing malt barley for market affected their food security put a reason that if the current trend continues (high demand and high price) it will force all farmers to shift to producing malt barley and ignoring other crops. This is a fear in the future and at this point in time it did not affect their food security status.

iv. Competitiveness and Cost of Production of malt Barley

The below tables gives data about the competitiveness of growing malt barley as compared to other crops grown by farmers and the cost of production for a quintal of malt barley. The majority (76%) of the respondents replied that growing malt barley is competitive compared

to growing other competing crops like wheat, beans and oil crops. Only in some parts of West Arsi where some farmers grow high value horticultural crops like potato, tomato, cabbage and onions malt barley cannot compete. But since these areas have bi-modal production season, they use malt barley as crop rotation crop. They also indicated that horticultural crops are bulky, perishable and difficult to sell as compared to malt barley.

Table 16: Competitiveness and cost of production of malt barley

Variable	Categories	Frequency	Percentage
Competitiveness of Malt Barley	Yes	112	76%
	No	35	24%
	Total	**147**	**100%**
Unit cost of Production (Birr/Qt)	< 100 Birr	5	3%
	100 - 300 Birr	49	33%
	300 - 500 Birr	79	53%
	500 - 700 Birr	16	11%
	Total	**149**	**100%**

The below table indicates the ranks of competitiveness of the various crops grown in the study area. Out of the 150 sample size 124 of them (84%) ranked malt barley as one of their best crop and 118 (95%) of them put malt barley in their 1st or 2nd competing crop category (crop of choice to grow). This high percentage is attributed to the new varieties (traveler).

Table 17: Competitiveness of Malt Barley as Compared to Other Crops

Crop Types	Ranks of competitiveness					Total
	1	2	3	4	5	
Malt Barley	40	78	5	1	0	**124**
Food Barley	0	8	12	2	0	**22**
Wheat	63	5	4	4	0	**76**
Beans	3	11	37	3	0	**54**
Oil Crops	0	0	27	0	0	**27**
Horticultural Crops	15	13	17	4	2	**51**
Other Crops	1	3	4	4	1	**13**
Total	**122**	**118**	**106**	**18**	**3**	**367**

Out of the total respondents, about 76 respondents (51%) put wheat as one of their competing crop and almost all of them 63 (83%) put it as 1st rank. This is observed mostly in

Bale and some parts of Arsi where the altitude is not perfectly suiting to traveler. Beans and oil crops are also somehow on their choice or ranks from 1-5.

As indicated on table 17 above, 35 respondents (24%) indicated that malt barley is not competitive for them compared to growing other crops but still they grow it. The question for them was if it is not competitive why they grow. The following table shows the reasons and percentages of responses.

Table 18: Reasons of growing malt barley even if it is not competitive

Catergories	Frequency	Percentage
Available embeded services from buyers	14	40%
Existance of high yielding of new varities	9	26%
Suitable Agro-Ecology	5	14%
Used as crop Rotation	3	9%
Used both for food and Market	4	11%
Total	**35**	**100%**

Significant proportion of these respondents (40%) have indicated that they grow malt barley since there is sufficient availability of embedded services (extension support, inputs, credit etc) while 26% of them grow malt barley due to the introduction of highly yielding varieties which in their views is under adaptation and scaling up phase. It is also indicated that they grow (14%) malt barley since it is one of the crop that can grow on their soil/ecology; some grow due to the fact that they use it for crop rotation (9%) and the remaining 11% indicated that they grow it for both market and food and they do not bother much about its competitiveness in the market.

4.7. Key Support Providers and Required Supports

As indicated in the below table, almost all of the respondents (99%) indicated that improved seed, fertilizer, pesticides and chemicals) are among the top supports made by different parties (Government, NGOs, Breweries, Maltsters, private companies, coops/unions, model

farmers etc). The least supports they have received are mechanization, on farm extension support, training and advice and finance/credit in order.

For further development of the malt barley value chain, respondents indicated that improved seeds, fertilizer, pesticides/herbicides and training/advice are among the tops services required. The least indicated required supports are on farm extension support, information and mechanization supports.

Table 19: Types of Key Supports

Variables	Categories	Frequency	Percentage
Key Supports Already Received	Improved Seeds	148	99%
	Finance/credit	131	87%
	Training and advice	120	80%
	Mechanization service (tractor, combiner etc)	75	50%
	Fertilizer	148	99%
	Pesticides, herbicides	148	99%
	Information	137	91%
	Market linkage	140	93%
	On farm extension support	112	75%
Key Future Supports Required	Improved Seeds	150	100%
	Finance/credit	121	81%
	Training and advice	148	99%
	Mechanization service (tractor, combiner etc)	117	78%
	Fertilizer	148	99%
	Pesticides, herbicides	149	99%
	Information	114	76%
	Market linkage	145	97%
	On farm extension support	109	73%

As can be seen from the below table, about 91% of the respondents relied that they have received the above services from Breweries and Maltsters followed by government offices (63%). When they refer to Breweries and Maltsters it is to say HEINEKN, DIAGEO and AMF and when they refer Government offices it is to say Agriculture Offices, ATA/OACC and Cooperative Promotion Office. Support from private organizations (Chemical companies, tractor combiner hires, etc) and financial institutions (MFIs and Banks) is 19% and 23% respectively. Significant percentage of the respondents (59% and 50%) also indicated that they have received the above services from Union/Coops/Model farmers and NGOs respectively.

If we look at the future trend in the below table, 89% of the respondents indicate that they need to get these services form their organizations (Unions, Coops and Model farmers) while the expectation from NGOs and Breweries/Maltsters show decline to 43% and 58% respectively. The percentage for financial institutions and private organization has increased tremendously. Hence, one can conclude that farmers are looking for commercial oriented solutions for the gaps instead of handouts/free supports. Hence the strategy to make the current value chain sustainable is through building the capacity of farmers' organizations (unions, coops, model farmers etc), increasing the involvement of private organizations (input suppliers, machinery renters, seed companies etc).

Table 20: Key Support Providers

Variables	Categories	Frequency	Percentage
Key Support providers (already provided)	Government Offices	95	63%
	Brewers and Malters	137	91%
	Unions/Coops/Model Farmers	89	59%
	NGOs	75	50%
	Financial Institutions	34	23%
	Private Organizations	29	19%
Expected Support providers (Future)	Government Offices	102	68%
	Brewers and Malters	87	58%
	Unions/Coops/Model Farmers	133	89%
	NGOs	65	43%
	Financial Institutions	78	52%
	Private Organizations	97	65%

Currently the breweries are supporting PPP projects which are under implementation in the study area among which the DIAGEO project via TechnoServe (Scaling – Up Malt Barley with Smallholders Contract Farming) and the HEINEKN project via EUCORD (CREATE).

As indicated in the below table, about 82% of the respondents replied that they are part of these projects in one way or the other way while only 18% of them replied that they are not part of these projects directly through they used some of the initiatives from these projects (like seed).

As can be seen from the below table, 75% of the respondents indicated the importance of those projects as extremely important or very important. Only 5% indicated that it is not as such important. The FGD and KII discussants indicated that the projects especially the HEINKEN CREATE Project has revolutionized the malt barleys sector in Ethiopia. The introduction of new varieties, making available some pesticides/herbicides, the pre-financing, extension support, full package approach, crop rotation and row planting are among the top services rendered by these projects.

Table 21: Malt Barley Projects and Level of Importance

Variables	Categories	Frequency	Percentage
Being Part of projects of Breweries	Yes	122	82%
	No	27	18%
	Total	**149**	**100%**
Level of Importance of these projects	Extremely important	57	47%
	Very Important	34	28%
	Important	25	20%
	Not as such	6	5%
	Total	**122**	**100%**

4.8. Malt Barley Marketing and Market Channels

4.8.1. Contract Framing, Advantages and Disadvantages

As can be seen from the below table, 95% of the respondents are producing malt barley under contractual relations. Most of them have signed a simple contract (one pager) with their direct buyers and some of them committed orally the quantity of supply. Only 5% of the respondents replied that they did not sign contract with anybody and will sell to whoever is paying better price (including traders) and available in the locality.

Most of the respondents who are working through contracts have signed contract with model farmers (54%) and cooperatives (30%) and the remaining percentage (16%) have signed

contract with both cooperatives and model farmers. The observation from the FGD and KII is that even though farmers have signed contract, the applicability is very less. At the end of the season most of the farmers sell to whoever buyer that offers a little bit higher price. The contract enforcement in general in the area is almost not existent. None of them have signed contract with traders in the area and it is not common practice for traders to sign contract.

About 42%, 29% and 14% of the respondents indicated that the end buyers of their barley are AMF, HEINEKEN and DIAGEO respectively. About 10% of the respondents indicated that they sell to more than one of these buyers. Only 5% of them indicated that the end buyer of their barley is traders.

Table 22: Engagement in Contract Farming

Variable	Categories	Frequency	Percentage
Producing malt barley under contractual relation (2015/16)	Yes	142	95%
	No	7	5%
	Total	**149**	**100%**
Direct Contract with whom (2015/16)	Primary Cooperative	43	30%
	Model/Nucleus Farmer	76	54%
	Trader	0	0%
	Primary Cooperative and Model Farmer	23	16%
	Total	**142**	**100%**
End Buyer of your barley (2015/16)	HEINEKEN	44	29%
	DIAGEO	21	14%
	AMF	63	42%
	Trader	7	5%
	HEINEKEN and DIAGEO	5	3%
	DIAGEO and AMF	7	5%
	HEINEKEN, DIAGEO and AMF	3	2%
	Total	**150**	**100%**

Respondents were also asked to indicate the advantages and disadvantages of working through contract farming. Among the top advantages indicated are access to improved inputs and technologies (38%), access to credit (23%), better price and premium (16%), exposure to new experiences (10%), and result oriented nature of the companies (4%).

Among the top disadvantages of contract farming indicated by the respondents are lack of transparency on price and quality grades (33%), limited flexibility and fail to adjust as per the changes in the market (23%), long bureaucracy and delays in decision (22%), feeling of tied up and mentally not free (13%) and everyone is trying to maximize one profit (9%) in the order of importance.

Table 23: Advantages and Disadvantages of Contract Farming

Variable	Categories	Frequency	Percentage
Advantages of working through contract farming	Access to improved inputs and technologies	54	38%
	Secure and sustainable market	13	9%
	Better price and premium	23	16%
	Access to credit	33	23%
	Exposure to new experience and working modalities	14	10%
	Result Oriented (Quality, volume)	5	4%
	Total	**142**	**100%**
Disadvantages of working through contract farming	Limited flexibility (price, quality, volume)	32	23%
	Lack of transparency (Price, quality grades)	47	33%
	Long bureaucracy and delays	31	22%
	Maximize own gain (Selfishness)	13	9%
	Mentally not free (Felt of debt)	19	13%
	Total	**142**	**100%**

4.8.2. Market Channels and Choosing Criteria

Respondents were asked to indicate their criteria to choose market channels before entering into a contract. They critically look at capacities of the buyer (35%) in terms of finance, skill, and logistics like warehouse, fast decision and immediate payment and proportional percentages look at access to inputs (17%) and personality (17%) of the buyer (trust, transparency and previous history). Moreover, credit provision, accessibility (proximity, availability during the week and whole day, easy communication) and feeling of ownership

(profit sharing) were mentioned by 15%, 12% and 5% respectively as some of the criteria to choose market channels/buyer.

Looking at so far performances, about 34% of the respondents prefers to sell through model farmers, 31% prefers to sell through primary coops, 5% prefers traders, 5% prefers both cooperatives and primary coops and about 25% prefers to sell to whoever is available during the season.

Table 24: Preferred Market Channels and Criteria of Choosing

Variable	Categories	Frequency	Percentage
Criteria of choosing market channels	Capacities (Finance, skill, logistics, fast decisions, immediate payment)	49	35%
	Access to inputs (Seed, chemicals, training)	24	17%
	Personality (Trust, transparency, previous history)	24	17%
	Accessibility (Proximity, accessibility, availability, easy communication)	17	12%
	Ownership (Dividend, guarantor)	7	5%
	Credit provision	21	15%
	Total	**142**	**100%**
Preferred Channels	Primary Coops	44	31%
	Model/Nucleus Farmers	48	34%
	Traders	7	5%
	Primary Coops and Model Farmers	7	5%
	Whoever is available	36	25%
	Total	**142**	**100%**

4.8.3. Factors that Affect Quality Grades of Malt Barley

As it can be seen from the below table, close to half (45%) of the respondents indicated that varietal mixture, foreign matter mixture, moisture and grain size are the key determinants of the quality and grading of malt barley. Colour and smell of the barley has also significant contributions in grading qualities. Sometimes the types of variety and the type of buyers also play a role in grading quality. Some buyers give emphasis to color and smell while others give high emphasis to grain size and varietal purity deepening on the purpose (for malt or as adjunct/raw or for food etc). During the FGD discussion it was possible to understand that

farm management, application of recommended packages, disease control, climate condition (rainfall, temperature, frost etc), transportation and storage, storage period etc have huge contribution leading to good or bad quality grades.

Table 25: Factors that Affect the Quality Grading of Malt Barley

Categories	Frequency	Percentage
Varietal mixture, foreign matter, moisture and grain size	67	45%
Colour and smell of the barley	35	23%
Types of malt barley varieties used	23	15%
Types of buyer (Skill level and Purpose)	25	17%
Total	**150**	**100%**

4.8.4. Foreseen Opportunities and Challenges

As can be seen from the below table, 68% of the respondents are worried about the increasing prices of inputs (seed, fertilizer, chemicals etc) and the surplus production that might happen in the coming seasons. Due to the high productivity of the new varieties and the intensive support from Breweries and Maltsters, majority of the farmers in the 2016 planting season have planted traveler which is high yielding. The total malting capacity in the country (52,000 tons of malt) can consumes only 69,160 tons of barley to the maximum capacity. The surplus production might end up with farmers for food which is big loss for the country. Climate change, lack of financing/credit sources and shortage of some inputs like effective chemicals could also be a challenge in the future.

In spite of all these challenges, respondents also mentioned a lot of opportunities in the malt barley value chain. Some of them are increasing beer production and hence demand for barley/malt (42%), efforts of malt barley variety improvements (27%), entrance of new malting companies (14%), improvement of market systems (could be via ECX) and wider experiences and collaboration from large farms that might enter the chain.

Table 26: Challenges and Opportunities of the Malt Barley Chain

Variable	Categories	Frequency	Percentage
Challenges facing in the coming 5 years (top ones)	Increasing price of inputs	45	30%
	Surplus production - beyond the country's malting capacity	56	38%
	Climate change and disease occurrences	21	14%
	Finance/credit	17	11%
	Lack of required inputs (Seed and chemicals)	10	7%
	Total	**149**	**100%**
Opportunities expected in the coming 5 years (top ones)	Malt barley varieties improvement	40	27%
	Entrance of new malting companies (International)	21	14%
	Increasing beer production (Demand)	63	42%
	Involvement of professional large farms in malt barley production	9	6%
	Improvement of marketing systems (Via ECX like coffee)	16	11%
	Total	**149**	**100%**

4.8.5. Strengths and Limitations of Smallholder Farmers as Business Partners

With the entrance of international Breweries and possibly Maltsters, Ethiopia needs strong farmers who can understand the demand and requirements of these companies. Support providers should strengthen these farmers and their organizations to the expected levels. Below are the indicated strengths and limitations of smallholders in the study area which could also be true for farmers in other areas of Ethiopia.Some of the strengths of smallholder farmers which could be plus for companies are as follows;

- ✓ Smallholders have long years of experience and knowledge of producing malt barley and the companies can initiate malt barley production with/without investment in training and orientations (38%).
- ✓ Smallholders organize own land and labor and companies do not need to invest in land and labor (30%).
- ✓ Smallholders are ready to finance own activities like labor, inputs, crop management, harvesting, threshing, transportation etc (14%)
- ✓ Smallholders are trustworthy and companies can build on this to establish long term business partnership (11%)
- ✓ Compared to large farms, smallholders are proven to produce high productivity and high quality of malt barley which is an opportunity for companies (7%).

Respondents also indicated that in spite of all these strengths, smallholders have also a number of challenges as well. These are;

- ✓ Price speculation and untimely delivery of the product (38%).
- ✓ Side selling for a little price change in the market (22%).
- ✓ Limited application of recommended malt barley production packages (14%).
- ✓ Limited awareness on cost of production and prices and always striving for higher prices (11%).
- ✓ Fragmented and small size of land which is high administration cost for companies (9%)

Table 27: Strengths and Limitations of Smallholders as Business Partners

Variable	Categories	Frequency	Percentage
Strengths of smallholder farmers as business partners	Organize own land and labor	45	30%
	Skill and knowledge of producing malt barley	56	38%
	Finance own activities	21	14%
	Trust	17	11%
	High productivity and quality of malt barley	10	7%
	Total	**149**	**100%**
Limitations of smallholder farmers as business partners	Side selling	33	22%
	Limited application of recommended packages/inputs	21	14%
	Price speculation and untimely delivery of the product	57	38%
	Default in repayment of loans (Pre-Finances)	9	6%
	Limited awareness on cost of production and price (Always look for higher price)	16	11%
	Fragmented and small size of land (Difficult for mechanization)	13	9%
	Total	**149**	**100%**

4.9. Access to Major Infrastructures and Finance

The availability and access to basic infrastructural facilities and services such as road, telecommunication, financial services and storage have huge impacts on the production and marketing of malt barley.

4.9.1. Access to Telephone, Road and Electric Power

According to figures in the below table, about 69% of the respondents indicated that they have access to good telephone connectivity. Those who indicated they do not have access to telephone connectivity indicated that this has badly affected their competitiveness in the market. This is in terms of getting market information, inputs, prices and payments. In line with this, about 57% of them do not have access to power connectivity and difficult to charge their mobiles. Only 43% indicated that they can access electric power at least in the nearest distance to charge their mobiles and for other purposes.

Table 28: Access to Telephone, Electric Power and Road Connectivity

Variable	Categories	Frequency	Percentage
Access to telephone connectivity	Yes	90	61%
	No	57	39%
	Total	**147**	**100%**
Effect of connectivity on competiveness in the market	Very Badly	16	28%
	Badly	25	43%
	To some extent	7	12%
	Does not affect	10	17%
	Total	**58**	**100%**
Access to electric power	Yes	63	43%
	No	84	57%
	Total	**147**	**100%**
Effect of road condition on transport cost	Very Badly	25	17%
	Badly	51	35%
	To some extent	26	18%
	Does not affect	45	31%
	Total	**147**	**100%**

About 52% of the respondents in the above table indicated that access to road has badly or very badly affected their operations in malt barley production and marketing. This is in terms of transporting inputs and marketing the outputs. Transporters and harvester combiners add cost when the road is really not good. This is additional cost that farmers are incurring. Only 31% indicated that road condition does not affect their malt barley production and marketing.

4.3.1. Access to Finance and Payment Modalities

As it is indicated in the below table, about 57% of the respondents indicated that they have access to credit services while 43% indicated that they did not get access to credit service for the production and marketing of malt barley. Most of the credit sources were coming from Breweries and Maltsters (67%), coops/unions/model farmers (13%), local money lenders (11%), traders (5%) and MFIs (4%). Respondents indicated that except the credit from MFIs and traders all other sources did not charge interest on credits.

Table 29: Access to Finance, Payment Modalities and Credit Requirement

Variable	Categories	Frequency	Percentage
Access to credit	Yes	83	57%
	No	63	43%
	Total	**146**	**100%**
Sources of credit	Brewers and Malters	56	67%
	MFIs	3	4%
	Coops/Union/Model Farmers	11	13%
	Traders	4	5%
	Local money lenders	9	11%
	Total	**83**	**100%**
Amount of credit	< 4,000 Birr	1	1%
	4,000 to 5,000 Birr	25	30%
	5,000 to 6,000 Birr	6	7%
	6,000 to 7,000 Birr	37	45%
	≥ 7,000 Birr	14	17%
	Total	**83**	**100%**
Interest to take credit in the future	Yes	35	56%
	No	28	44%
	Total	**63**	**100%**
Reasons of not taking credit	Able to finance my activities	7	25%
	Religious (No interest)	10	36%
	High Interest rate	7	25%
	Fear of risk	4	14%
	Total	**28**	**100%**

One can see that the responsible bodies to finance farmers and their organizations are hardly available in the sector. Only 4% indicated that they got credit from MFIs for their malt barley production. This is an area that needs serious improvement.

The majority of the respondents (62%) indicated that the size of the loan they took from these sources is greater than 6,000 Birr while the remaining 38% indicated that the size of the loan was less than 6,000 Birr. This loan was mostly in kind (Seed, chemicals, fertilizer etc) and the repayment was mostly done during harvest by deducting from the harvest or cash payment in some cases. In some cases the repayment rate is very good (up to 98%) while in some case it is the worst (sometimes can go up to 60%) which is not good for the whole chain as it is.

Those who did not yet get access to credit were asked if they are willing to take credit in the future. About 56% of them are willing to take credit under the condition that there will be no or minimum interest rate. The remaining 44% are not willing to take any credit in the future for the major reasons like they are able to finance own activities (25%), religious reasons (36%), high interest rate (25%) and fear of risk (14%).

Regarding the mode of payment for their barley as indicated in the below table, 92% of the respondents replied that they got their payment in cash and only 7% and 1% got their payment in bank accounts and by checque respectively. By nature farmers want to get in cash and want to count money instead of checque or deposit to account. The FGD and KII discussant indicated that it is bulky process to handle payments and there should be simple payment systems via SMS, or local agent or warehouse receipt. Initiatives of Hello Cash, KIFIYA and MBIRR should be explored and adopted to the area. It is very risky for some of the remote areas like Kore Woreda to carry a huge amount of money in the village without having proper security and insurance.

Table 30: Mode of Payment and Duration of Payment

Variable	Categories	Frequency	Percentage
Mode of payment for your barley	Cash	137	92%
	Bank Account	11	7%
	Checque	1	1%
	Total	**149**	**100%**
How long it takes to get your payments from buyers	Immediately on the spot	92	62%
	1-2 Days	11	7%
	3-4 Days	15	10%
	5-6 Days	11	7%
	≥ 7 Days	20	13%
	Total	**149**	**100%**

As can be seen in the above table, 62% of the respondents replied that they got their payments immediately on the spot. Only 13% indicated that they got their payments in seven days or more. They indicated that if the buyer does not pay immediately on the spot it means that either the buyer has good relation with the supplier or the buyer is in a critical shortage of finance. Buyers who pay immediately on the spot are seen as preferred ones.

4.3.1. Storage and Duration of Storage

The below table gives information about storage mechanisms, duration of storage and reasons of storage of malt barley after harvest. It is indicated that about 58% of the respondents replied that they are storing their barley for more than two months irrespective of the contacts with the buyers. Only 17% are storing for less than 1 month.

Storage mechanisms are by sacks (65%), traditional store made of wood/mud (21%), modern CIS warehouses (10%) and 4% indicated they do not store at all. The FGD and KII discussants indicated that the quality of malt barley could be seriously affected during transportation and storage. The smell, colour, mixture, moisture, germination capacity, infestation etc could occur during storage.

Farmers forwarded various reasons of storing their barley even if there is good price and there is contract with buyer. Some of the major reasons are speculation/waiting for better price (58%), saving mechanism/sell only when cash is demanded (25%), wait planting season and sell as seed (13%) and keep it for food security and sell when it is clear that next harvest is good (5%).

Table 31: Storage Mechanism, Duration and Reasons

Variable	Categories	Frequency	Percentage
Duration of storage before taking to the market	< 1 Month	25	17%
	1 to 2 Months	36	25%
	2 to 3 Months	44	30%
	3 to 4 Months	20	14%
	≥ 4 Months	21	14%
	Total	**146**	**100%**
Storage mechanisms of the barley	Sacks (Polyphony bags)	95	65%
	Traditional Store (Wooden or mud)	30	21%
	"Modern" CIS Warehouse	15	10%
	Do not store at all	6	4%
	Total	**146**	**100%**
Reasons of storing more than 2 months	Saving Mechanisms (Sell when cash is needed)	21	25%
	Waiting for better price	49	58%
	To sell as seed	11	13%
	Keep for security (Consumption)	4	5%
	Total	**85**	**100%**

CHAPTER FIVE

5. SUMMARY, CONCLUSION AND RECOMMENDADATION

5.1. Overview

This chapter presents the summary of major findings, conclusion, recommendations and areas of further research derived from the current study. The study intended to identify the role of smallholder malt barley producers to import substitution and industrialization of Ethiopia in the highly growing of beer market and high demand for malt. The study also analyzed the current status of the chain, role of smallholders, key challenges, opportunities and expected supports for self sufficiency of Ethiopian in malt barley production. The historical development of malt barley over the last five years was assessed to get an idea of how the market demand developed and how was the response from the supply side.

5.2. Summary of Major Findings

An analysis and interpretations of data in the current study revealed a number of findings, which are summarized as follows;

- ✓ The introduction of new varieties (Especially traveler) and the engagement of the breweries (HEINEKEN and DIAGEO) have revolutionized the malt barley value chain in the study area. The introduction of the two improved varieties of malt barley seed, traveler and grace, by HEINEKEN, and creation of an effective market access system for the produce has professionalized the market system and has benefited most of the value chain actors.
- ✓ Significant improvement has been observed in malt barley sector especially over the last 3 years in terms of;
    - ☞ Mean increase in land allocated for malt barley per person from 0.64 hectares in 2011 to 1.08 hectares on average in the study areas.

- ☞ Mean increase in productivity per unit from 24 Quintal/hectare in 2011/12 to 39 Quintals for all malt barley varieties which is 63% over the last five years. The mean for the new varieties is 46 Quintals per hectare which is really tremendous improvement.
- ☞ Mean increase in price per unit of malt barley from 430 Birr per quintal in 2011/12 to 910 Birr per quintal in 2015/16 which is 112% increase in five years.

- ✓ Malt barley is becoming a purely commercial commodity than produced as optional crop for ether for market or food. This study found out that in 2011/12 out of the total produced malt barley, a farmer consume about 30% but in 2015/16 the malt barley used for food is only 13% and the remaining was sold to the industry. Especially the new varieties are purely for market (more than 90% is for market) and the trend shows significant increase of malt barley going to the industries. The mean amount sold by an individual to the industry in 2015/16 was 44 quintals while it was 12 quintals in 2011/12 which is 267% increase over five years.
- ✓ All Breweries and Maltsters under study indicated that about 99% of the local barley comes from smallholders. As per the discussion with Maltsters and Breweries, in 2015, domestic malt barley production met about 35% (34,206 Tones) of the total demand in Ethiopia, with the remaining 65% (63,526 tons of malt) imported at a cost of $38 million. In this calculation the sourcing from smallholders saved about $20.5 million of FOREX which is huge contribution for the country. In 2016 purchase season AMF did not import barley for the whole year production and GMF imported 70% of its supply. When this is calculated it is about 40,800 tons of malt which is value at $24.4 Million. In 2017 purchase season, it is expected that the full capacity of the two malting factories shall be met with local sources which is value at $31.1 Million.
- ✓ The malt barley value chain is better organized and better accessible by the producers: As the crop is mainly produced for industrial use, the end market actors which are breweries and the malt factory have directly involved in the marketing of the crop. The companies are engaged with the producers and their organizations through formal contract based relations to negotiate on prices of their sales and other support services they need to get from the companies in their process of production and supply. Many other agencies are actively involved in the malt barley sector in supporting, regulating

and coordinate the chain. ATA/OACC, MOA, EIAR, OSE, chemical companies (BASF, SYNGENTA, BAYER etc). There is regular quarterly malt barley cluster meeting where all parties present and discuss on common agendas and how to improve the chain in general. ,

- ✓ Growing malt barley is competitive than growing any other crops. The financial return on malt barley production is significantly higher than investment in all the other crops: The improvement in productivity from using improved agriculture packages (seeds and other inputs) and a significant price increase has helped farmers' better return. According to calculation made during discussion with farmers the net earnings of growing malt barley is 44,721 Birr/Hectare and 888.5 Birr/quintal for new varieties while it is 32,695 Birr/hectare and 717.5 Birr/quintal for wheat; and 22,527.5 Birr/hectare and 629.4 Birr/quintal for food barley. For local varieties of malt barley it is 27,600 Birr/hectare. About 76% of the respondents indicated that growing malt barley is competitive than growing any other crops.
- ✓ Better prospects of the Ethiopian malt barley: The government gives priority for domestic production of malt barley over importing. However, the supply capacity of the local malting factories is limited to 35-40% of the current effective demand. The gap between supply and demand is already very wide and the rate at which the brewery factories capacity is increasing through new investments and expansion of the existing ones is expected to tremendously increase the demand gap. Hence, if concerted efforts are made to get a grip on this opportunity with all the concerned stakeholders, the future of malt barley is promising.
- ✓ Currently the imported barley/malt is by far cheaper than imported barley/malt. The average price calculated for the breweries included in this study is 10.45 Birr/Kg of barley while the imported barley at the gate of malting factory is 9.10 Birr/Kg. Hence, without taking the quality difference into consideration, local barley is 15% more expensive than imported barley. Similarly the imported malt at the gate of the breweries is 18 Birr/kg while malt directly from local Maltsters is 20 Birr/kg. This is 11% expensive than imported without taking into consideration the quality difference and taxes involved. For those breweries that directly source their barley from farmers, they

are expected to pay higher toll malting fee (8.17 Birr/kg) and their final local malt end up at 22.4 Birr/Kg which is about 24% more expensive than imported malt.

- ✓ The supports provided by chain supporters NGOs and PPP projects of breweries improved the position of smallholder farmers in the chain. About 82% of the respondents got key services from those projects and 75% of them indicated these as extremely important. Key services include seed, credit, training/extension support, pesticides/herbicides which are not easily available in the villages. About 89% of the respondents indicated that they need these services to be provided by their organizations like coops/unions/model farmers in the future. The current financial and technical services of the companies and the NGOs are time bound and they are provided on a relatively large but limited scale.
- ✓ Producing malt barley for market does not conflict with the food security agendas. In this study, about 95% of the respondents indicated that producing malt barley for the market does not affect their food security/consumption. Farmers have their own mechanism to balance between producing for market and producing for consumption/food. Some of the mechanisms are producing other food crops (Like wheat, food barley, maize, Enset etc) parallel to producing malt barley. These respondents strongly believe that farmers do not fully shift to one crop whatever the price and market is. Farmers by nature are implementing various risk minimization mechanisms among which producing various crops for various purpose is very common. Moreover, farmers cannot grow barley year after year and need to maintain soil heath, control disease and some weeds.
- ✓ This study found out that irrespective of the contract they have, more than 58% of the respondents store their barley for more than 2 months. The reasons forwarded are it is saving mechanisms (sell when cash is needed), speculating/waiting for better price, wait the planting season to sell as seed with higher price and keep for security/consumption until they make sure that the next season looks ok. Hence, the companies pushing for delivery strict delivery time hardly work in the study area.
- ✓ From the FGD and KII it was found out that the productivity and quality of malt barley that comes from smallholders is by far greater than that of large farms. The average productivity for smallholder farmers for the new varieties in 2015/16 season was about

46 quintals/hectare while the calculated mean for of productivity of three large farmers working with one of the brewery is 24 quintals per hectare. This indicated that the smallholders are 92% more productive than large farms under discussion. Breweries and Maltsters also confirmed that the quality of malt barley that comes from smallholders is by far better than the malt barley that comes from large farms.

- ✓ The involvement of the formal financial institution is very minimal in the malt barley value chain. About 96% of the respondents indicated that their sources of credit is from non-financial services (Breweries, Maltsters, Coop/unions, Traders, Money lenders etc) while only 4% of them indicated they got their credit from MFIs (Busa Gonofa and OCCSCO). Farmers indicated that for the production of a hectare of malt barley (using full package), they need on average about 7,000 Birr credit.
- ✓ More than 80% of the respondents indicated that major supports required for farmers to produce the required quantity and quality are improved seeds, appropriate fertilizer, pesticides/herbicide, training/advice and market linkage. Most of the farmers indicate that they are looking for commercial solutions/services (mostly from their own organizations, private companies, financial institution and to certain level from breweries) than a handout/free support. In their view, the role of NGOs and government should be moderate compared the current level of involvement.
- ✓ The study found out that about 68% of the respondents are worried about the increasing prices of inputs (seed, fertilizer, chemicals etc) and the surplus production that might happen in the coming seasons. Due to the high productivity of the new varieties and the intensive support from Breweries and Maltsters, majority of the farmers (67%) in the 2016 planting season have planted traveler which is high yielding. The total malting capacity in the country (52,000 tons of malt) can consumes only 69,160 tons of barley to the maximum capacity. The surplus production might end up with farmers for food which is big loss for the country. Climate change, lack of financing/credit sources and shortage of some inputs like effective pesticides/herbicides could be a challenge in the future. According to the FGD and KII in 2016 planting season there are 141,000 smallholder farmers who are serious malt barley producers (produce for market and not simply for crop rotation) in Arsi, West Arsi and Bale areas. If we follow the findings of this study, the mean land size allocated is 1.08 hectares per farmer and the productivity

per hectare for all varieties of malt barley is 39 quintals and about 87% of the production is purely for market. Hence, the total expected production purely for the market is 5.17 million quintals of malt barley and the local malt factories can consume only 13% of the total production. There might be some breweries that use raw barely as adjuncts and this percentage could raise.

5.3. Recommendations

Recommendations proposed in this study are positive statements of the identified challenges and indicators of how best the existing opportunities could be exploited for better performance of the value chain. The actions are not necessarily undertaken by a single party buy should be addressed by all the stakeholders of the value chain (Macro, Meso and Micro levels) that are concerned for improvement of the value chain in Ethiopia. The following main recommendations are forwarded from the study:

- ✓ Ensure competitiveness of Ethiopian Malt Barley: It was found out that malt barley is competitive compared to growing other crops in Ethiopia. But since we are competing with the international market, to ensure the sustainable growth and 100% local sourcing or even export over time could be possible if and only if Ethiopian malt barley/malt is competitive in terms of cost and quality. This could be done by enhancing production capacity of Ethiopian farmers (increase productivity and quality) and thereby reduce cost. This will ensure the mutual benefits of the actors and ensure the sustainability of the value chain.
- ✓ Stimulate the role Financial Institutions in the Ethiopian Malt Barley Value Chain: As indicated by this study, only 4% of the respondents indicated that their source of credit is from formal financial institutions (MFIs). The Government needs to stimulate local banks to become more active in financing the sector (inputs, output and asset financing). The current financing support from Breweries, Maltsters and NGOs is not commercially viable. Hence, formal financial institutions (Banks, MFIs, insurances) should make available proper financial products: Interest rate, timing, amount, payment system etc.

- ✓ Encourage/enforce the use of local malt barley/malt: Government need to define clear policy for Breweries and Maltsters to optimize sourcing of local barley/malt that encourage them to look inside capacities than import. This can be achieved via adjusting the import tariff policies on malt in combination with a quota system that requires all breweries to take an equal percentage of their malt needs from a local Maltsters based on total malt needs versus local malt produced. Even when there is a price difference between local and imported malt this provides a level playing field for all breweries. Government can enforce 100% local sourcing when it makes sure that self-sufficiency has been achieved both in malt barley and malting capacity. Some of the encouragement mechanisms could be through revising tax policy and tax incentives.
    - Current excise duties are 50% of production costs. In order to stimulate import substitution government might envision abolishing or lowering the percentage excise rate for production costs that are locally sourced.
    - Current excise base of production costs is ambiguous and very cumbersome to administer. It is better to move to a fixed rate per hectoliter beer produced. Unambiguous tax laws and applications are important for foreign direct investment and to secure a level playing field between the breweries. For example government could develop a system like:
        - X birr/L - 0 % local materials
        - X Birr/L – 20% for 20% local materials
        - X Birr/L – 50% for 50% local materials
        - X Birr/L – 70% for 70% local materials
    - Support foreign investors that are creating export substitution with adequate governmental support related to land (e.g. Industrial parks) , access to funding, business licenses, infrastructure like roads, railway, access to the grid, water, etc.
    - Incentivize breweries that are developing a local barley chain. Currently there is a competitive disadvantage for the breweries that are involved in local barley. This is unsustainable and should be changed as soon as possible.
- ✓ Strengthen the capacities of farmers' organizations (Unions, coops etc), including better contract enforcement and extent extensively the HEINEKEN's Model Farmer approach, which entails a more business driven approach. Government should not push breweries

and Maltsters to use only coops and unions as sole sourcing agents/aggregators. However, other options like the model farmer/Nucleus farmers approach or any other model that ensure the efficient aggregation and supply. Moreover, it is important to put in place the crop insurance system, using satellite data (G4AW: Geo data for Agriculture and Water) and improve other logistics/infrastructures like warehousing and quality checking/ standardization.

- ✓ Modernize the marketing and price setting of malt barley: There should be commercial/market driven price setting mechanism instead of government intervention. Currently, with the facilitation of the regional ATA, a committee is formed to decide on the base price (normally higher than import price of barley). Most of the committee members are pro-farmers and does not have the right commercial experience. Over time trading malt barley should be handled through ECX floor like other commercial crops (coffee, sesame, beans etc).
- ✓ Increase the local malting capacity: Government should put in place clear policies to stimulate the local purchase of malt by breweries and give a clue for the new investors how should the Ethiopian malting sector look like. Greenfield investments can be as high as USD 1,000/mt or USD 50 mln for a 50,000mt Greenfield malting plant. Government should also be clear on what to do with the current government owned malting company. Currently a bid is announced to sell AMF (50% only) and who is willing to buy it given the efficiencies id not yet clear. Breweries believe that with lower local barley prices and a more efficient malting process, prices should come down substantially leading to 100% local sourcing and even think of export to neighboring countries.
- ✓ Enhance local production/productivity and quality of malt barley to ensure self-sufficiency before rushing to import ban: This could be achieved through;
    - Ensure the availability of sustainable quality seed sources and increase the yield above the existing new varieties (Traveller and Grace)
    - Introduce new seed varieties that could better grow at grow lower altitudes.
    - Strengthen the role of the research system.
    - Availability and solid functioning of the supply chain of other inputs: herbicides, pesticides and fungicides.

- Good extension (knowledge and experience) support to farmers should be in place. Supporting farmers on their farm – pre, during and post-harvest.
- Using irrigation/bi-modal planting system to produce twice a year.
- Pulling the lands of smallholders or encourage large commercial farms in mat barley production: involve large farms to engage in the production of malt barley in a modern way, including mechanization. Make available all required machineries, combining farmers land to get bigger sizes of land, like 10-50 ha's.
- Enhance mechanization and modernization of the smallholder farms: Facilitate access of producers to improved hardware technologies such tractors, row planters and combine harvesters to improve productivity and minimize loses in production and harvesting processes.

✓ Given the fact that more than 99% of the current local malt barely is coming from smallholder farmers and it is proven that the productivity and quality of malt barley supplied by smallholders is by far greater than that of large farms, smallholders should be the first choice for Ethiopia to ensure 100% local sourcing and even think of export to certain levels. With the current situation, malt barley varieties are grown in a high lands where the land is fully occupied by smallholder farmers. Instead of evicting these farmers and encouraging large farms the logical way is for all stakeholders to strongly work on how to make the smallholders more efficient and business oriented malt barley producers. In the future, new malt barley varieties which can be grown on lower altitudes could be introduced and large farms could be promoted since land is easily available in those altitude ranges.

✓ From the various FGD and KIIs it was possible to understand that due to untimely availability of seeds, inaccessibility, its high price and limited awareness of farmers, about 40-45% of malt barley producers are using own saved seed or buy non certified seed from other neighboring farmers. Various researches indicate that there is 10% decrease in productivity between declining generations of seed (This need to be further researched). Moreover, there is high disease susceptibility and requiring for higher inputs when farmers are using non certified or declining generations of seed. This indicates the need to promote community seed multiplications so that farmers access the

seeds in their proximity and at reasonable price. The ISSD project has done remarkable jobs in this regard.

- ✓ The study found out that irrespective of the contract they have with buyers, more than 58% of the respondents store their barley for more than two months. This breach the time of delivery in the contract and the barley is kept under poor storage mechanism and affects the quality of malt barley. Major reasons of storing malt barley for longer periods are speculation/waiting for better price and security issue. To curb this problem, Breweries and Maltsters should design some mechanisms like premium payment for on time delivery, higher price for 1-2 months of after harvest and then decrease over time for delayed supply and made available credit/financial options for farmers.

5.4.Conclusion

The Ethiopian brewing sector is growing at a very fast rate compared to the malt barley/malt sector. The country puts special emphasis and move toward linking agriculture and industry through an import substitution and industrialization process. Ethiopia is one of the countries where malt barley can be grown perfectly and there is ample land and smallholders who can sufficiently produce malt barley for the industry. The country wants to save FOREX in all direction by all means.

This study confirms that with the current move and the involvement of the Breweries and Maltsters in the malt barley sector, Ethiopia can achieve self-sufficiency in its malt barley supply by latest of 2021. The current key and prime bottlenecks of limited malting capacity and high cost of the local malt barley/malt should be addressed for the sustainability and competitiveness of the Ethiopian malt barley sector as soon as possible. There is a need to continuously increase production, productivity and quality of malt barley and the need to invite new malting companies to invest in Ethiopia as soon as possible.

In the whole process of import substitution and self-sufficiency, the role of smallholders is pivotal and all stakeholders should concert their efforts toward building the capacity of smallholders and their organizations. Breweries and Malters that are currently supporting

malt barley sector should be incentivized and should be encouraged to continue these indispensable projects (CREATE, TechnoServe projects) which has revolutionized the malt barley sector over the last three to four years. Focus should be given to high potential areas like Arsi, West Arsi, Bale, West/South West/ and North Shewa of Oromia, North Shewa of Amhara, Gondar, Gojam and other potential areas to meet the countries demand as soon as possible.

The active role of formal financial institution, research centers, private companies, farmers' organizations is very essential. Government should allow other possible options like rural agricultural enterprises, rural SMEs, model/nucleus farmers approach of Heineken etc instead of simply pushing only towards the traditional approaches via coops and unions.

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Annexes

Annex 1: Questionnaire to collect information from Smallholder Malt Barley Growers

General Direction

I am conducting a study on "*The Role of smallholder farmers in the Import Substitution and Industrialization of Ethiopia: The Case of Malt Barley Producers in Arsi and Bale Areas, Ethiopia*" for the partial fulfillment Master of Arts in Rural Development of Indira Gandhi National Open University. The general objective of the study is to find out and analyze the role of smallholder farmers in the import substitution and industrialization of Ethiopia. The specific objectives of the study are;

- To identify the current roles of smallholder farmers and find out their role to the import substitution and industrialization agenda of Ethiopian and how to foster their role in the future economic development of Ethiopia.
- To identify and analyze the key constraints, opportunities and proposed solution to for Ethiopian smallholders to be seen as a real business partners and supplier of raw material to the industry.

Instruction;

- Please put tick mark or circle (√) whenever necessary;
- Give short and clear answer in the space provided for the questions that require your opinion or suggestions
- Please do not leave any questions unanswered.

Thank you in advance for cooperation!

Tarekegn Garomsa

I. Personal and Household Information

1.1. Head of Household: 1. Male 2. Female

1.2. Age: …… Years

1.3. Study area: Zone……., Woreda ……Kebele

1.4. Highest Level of Education Attended: ……

1.5. Marital status:

1. Married 2. Unmarried 3. Divorced

4. Widowed 5. Other, specify _____

1.6. What is the size of your family (Your children and dependents)? M …….., F …..

II. Malt Barley Production Information

2.1. How many hectares of land do you currently own (All land including grazing land? …….. hectares

2.2. How many of this land is grazing land? ……hectares

2.3. How many hectares of land you rented in 2008? …….. hectares

2.4. How many hectares of land you leased out in 2008? …….. hectares

2.5. What are the major crops grown (2008 E.C planting season) in order of importance and for what purpose;

S/N	Type of crops grown	Size of land (ha) both rented and owned land	Purpose (market or food)
1			
2			
3			
4			
5			

2.6. What was the amount of land covered with Malt Barley over the last 5 years and major buyers?

S/N	Years (E.C)	Size of land (ha) covered with malt barley	Productivity Per Hectare	Malt barley varieties used
1	2004			
2	2005			
3	2006			
4	2007			
5	2008			

2.7. What is your average annual household income in Birr? ----------

1. Less than 20,000
2. Between 20, 000 and 30,000
3. Between 30,001-50,000
4. Between 50,001 and 70,000
5. More than 70,000

2.8. What are your main sources of income?

1. Farming
2. Labor
3. Trading
4. Other, specify_____

2.9. Type and quantity of animals owned

S/N	Types animals owned	Quantity owned
1		
2		
3		
4		
5		
6	Others	

2.10. If your main source of income is farming, how malt barley farming is important to your livelihood?

1. Very important
2. Important
3. Moderately important
4. Slightly important
5. Not at all important

2.11. How much quintals of malt barley did you harvest over the last 5 years

S/N	Years (E.C)	Land covered with malt barley (Ha)	Total volume harvested (Quintals)	Volume sold		Volume consumed at home (Quintals)
				Unit price/Quintals	Amount sold in Quintals	
1	2004					
2	2005					
3	2006					
4	2007					
5	2008					

2.12. What are the key determinant factors to enhance production and productivity of your malt barley?

……

2.13. Is producing malt barley for market affected your food security status? 1. Yes 2. No

2.14. If yes, How?

……

2.15. If "No" to question 2.12. How do you balance your food security (for consumption) versus what you produce fro market?

……

2.16. Is growing malt barley competitive to growing other competing crops? 1. Yes 2. No

2.17. If "Yes", give rank compared to other competing crops in your area (In terms of income fetched in Birr).

S/N	Rank by level of income fetched in 2008 EC	Crop and Earning in 2008 E.C	
		Crop type	Amount of money earned (Birr)
1	1st		
2	2nd		

3	3rd		
4	4th		
5	5th		

2.18. If "No", what attracted you to produce malt barley instead of other competing crops?

……

2.19. What is the total cost required to produce a quintal of malt barley? ……. Birr (Including labor cost)

III. Key Support providers and key Supports Required

3.1. What are the key supports you received so far to produce the required quantity and quality of malt barley (Rank in order of importance)? Who are the support providers?

S/N	Types of Supports	Support provided by
1	Improved Seeds	
2	Finance/credit	
3	Training and advice	
4	Mechanization service (tractor, combiner etc)	
5	Fertilizer	
6	Pesticides, herbicides	
7	Information	
8	Market linkage	
9	On farm extension support	
10	Others – specify	

3.2. What are the key required supports you need in the future to produce the expected quality and quantity of malt barley? Rank in order of importance

S/N	Types of Supports	Level of importance (Rank from 1-5). 1 shows highest need	Support expected from which organization
1	Improved Seeds		
2	Finance/credit		
3	Training and advice		
4	Mechanization service		

	(tractor, combiner, row planter, seeder etc)		
5	Fertilizer		
6	Pesticides, herbicides		
7	Information		
8	Market linkage		
9	Others – specify		

3.3. Are you part of the projects implemented by any of the multinational companies (Example CREATE Project of HEINEKEN, Malt barley project of DIAGEO)? 1. Yes 2. No

3.4. How important is the support provided by the projects of multinational companies like HEINEKEN and DIAGEO) to you? If you are part of this projects

1. Extremely important 2. Fairly important
3. Very Important 4. Important
5. Not important at all

IV. Marketing and Market Channels

4.1. Are you producing malt barley under contractual relation? 1. Yes 2. No

4.2. If yes, with whom?

1. Primary Cooperative 2. Model/Nucleus Farmer
3. Union 4. Trader
5. Others, Specify …….

4.3. If yes, why you choose this channel as your channel of trading? What special qualities or benefits this channel has for you?

……

4.4. Who was the end buyer of your barley (to whom do your buyer sells the barley finally)?

1. HEINEKEN 2. DIAGEO
3. AMF 4. Trader

5. Others, Specify …….

4.5. If "Yes" to question 3.1. What are the advantages and disadvantages of producing under contract farming Approach?

S/N	Advantages	Disadvantages
1		
2		
3		
4		
5		

4.6. If "No" to question 4.1. How do you sell your malt barley?

……

From the below list, which channel do you prefer and why?

S/N	Channels	Reasons to prefer this channel
1	Primary Coops	
2	Model/Nucleus Farmer	
3	Union	
4	Trader	
5	Others	

4.7. What are the key factors that affect the grades/price of your malt barley?

……

4.8. What are the key challenges and opportunities you foresee in the coming 5 years?

S/N	Challenges	Opportunities
1		
2		
3		
4		
5		

4.9. What do you think are the key strengths and limitations of smallholder farmers as business partners in malt barley value chain?

S/N	Strengths	Limitations
1		

2		
3		
4		
5		

V. Access to Major Infrastructure and Finance

5.1. Is there fairly enough connectivity in your area to get access to market information via different communication technologies?

1. Yes 2. No

5.2. If your answer to the question number 5.1 above is no, how does this affect your competiveness in the market?

1. Very badly 2. Does not affect

3. Badly

5.3. Is there fairly regular supply of electric power to use your communication devices such as your mobile phone?

1. Yes 2. No

5.4. How does the road condition affect your transport cost?

1. Very good 2. Badly 3. Good

4. Good 5. Very badly

5.5. Have you ever received credit from any organization for your malt barley production in the last 3-5 years? 1. Yes 2. No

5.6. If "yes", from which organizations? Names and amount?

S/N	Organizations	Loan Amount	Interest rate
1			
2			
3			
4			
5			

5.7. What amount of credit do you require to produce a hectare of malt barley (using full package for all inputs)? …….. Birr

5.8. If “No” to the question 5.5 do you have interest to take credit in the future to produce malt barley production? 1. Yes 2. No

5.9.If “No” to question 5.8 what is the reason not to take credit?

……

5.10. How are you paid for your barley by the buyers? 1. Cash 2. Bank account 3. Checque

5.11. How long it takes for you to get your payment from the buyers? …….. Days

5.12. How do you store your malt barley (Storage mechanisms)?

……

5.13. For how long you store your malt barley before you take to market? Number of months

……

5.14. If you store your barley more than 2 months, why do you store for such long period before selling to the market?

……

The END

Thanks for your genuine information!

Annex 2: Checklists for Key Informant Interview (KII)

General Direction

I am conducting a study on "*The Role of smallholder farmers to the Import Substitution and Industrialization of Ethiopia: The Case of Malt Barley Producers in Arsi and Bale Areas, Ethiopia*". The general objective of the study is to find out and analyze the role of smallholder farmers to industrialization and import substitution of Ethiopia. The specific objectives of the study are;

- To identify the current roles of smallholder farmers and find out their role to the import substitution and industrialization agenda of Ethiopian and how to foster their contribution in the future economic development of Ethiopia.
- To identify and analyze the key constraints, opportunities and proposed solution to for Ethiopian smallholders to be seen as a real business partners and supplier of raw material to the industry.

Instruction;

- Please put tick mark or circle (√) whenever necessary;
- Give short and clear answer in the space provided for the questions that require your opinion or suggestions
- Please do not leave any questions unanswered.

Thank you in advance for cooperation!

Tarekegn Garomsa

Respondents

These questions was directed to the main users of malt barley in Ethiopia especially Maltsters: Assela and Gondar Malt Factory and Breweries: HEINEKEN, DIAGEO, Habesha, Dashen, Raya, BGI Breweries

Checklists

1. Type of organization: …….
2. What is your annual barley demand?
3. Where do you get this barley? Domestic or import?
4. What is the proportion of domestic versus imported barley?
5. If you import both barley and malt, what is the landed cost of each?
6. What is the landed cost of local barley and malt?
7. How do you see the quality of barley from both sources?
8. In what form do you use malt barley? Raw or malt?
9. What is the conversation rate of barley to malt? Both domestic and imported?
10. What is the extraction level of malt? Both domestic and imported?
11. Who are your local suppliers of malt barley?
12. Why do you prefer to source barley locally instead of import?
13. How do you see the capacity of local suppliers in terms of the following aspects?
    a. Supply volume
    b. Quality of barley
    c. Timely supply
    d. Cost incurred
    e. Abiding Contract
    f. Responsiveness and business character
    g. Organizational capacity (Financial, institutional, human capacity etc)

14. What supports did you provide to smallholders and their organization so far?
15. How do you evaluate the capacity of smallholder farmers as real business partners?
16. How do you compare large farms and smallholder farmers as real business partners to source barley locally?
17. What are the key parameters to produce the required quantity and quality of malt barley in Ethiopia? To be self-sufficient and fully realize the government's import substitution strategy?
18. What are the key challenges and opportunities to partner with smallholder farmers as business partners to source barley locally?

19. What do you recommend to foster the contribution and role of smallholders in the realization of import substitution and economic development of Ethiopia in the future?
20. Can Ethiopian be self-sufficient in supplying malt barley for the brewery industry? How? How many years do you think it will take? What are the key bottlenecks to realize this objective?

THE END!

Indira Gandhi National Open University
School of Continuing Education
Department of Rural Development

The Role of Smallholder Farmers to the Import Substitution and Industrialization of Ethiopia: *The Case of Malt Barley Producers in Arsi and Bale Areas, Ethiopia*

Submitted to: Indira Gandhi National Open University **(IGNOU)**
St. Mary's University (SMU), Addis Ababa, Ethiopia

By;

Tarekegn Garomsa
Enrolment No: 109100733
Tel: +251 913 289151
E-mail: taregarom@gmail.com

March, 2016
Addis Ababa, Ethiopia

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1. Introduction

1.1 Background of the Study

According to recent data, by the year 2050, the global population is expected to exceed nine billion people. Beyond ensuring that everyone has strong and reliable access to education, employment, energy, and health care, feeding over nine billion people within the next 35 years will require a 60 percent increase in global food production. This challenge becomes more daunting when we consider that, according to 2013 research published in Nature Communications, industrial agriculture may be reaching the limits of food production; meanwhile, climate change will continue to have a negative impact on food production. Innovative solutions must be adopted to meet current and future demand for food around the world, while simultaneously balancing the health of global ecosystems with economic growth (CGI, 2016).

The greatest opportunity to meet this growing demand, and in a sustainable manner, lies with the 500 million small-scale farms in Asia and Sub-Saharan Africa. These farms employ 2.5 billion people and collectively provide 80 percent of the food supply in those regions. Despite the volume of food they produce, smallholder farmers generally have low access to technology, limited resources in terms of capital, skills, and risk management, depend on family labor for most activities, and have limited capacity in terms of storage, marketing, and processing. These constraints limit the ability of smallholders to achieve their full potential, but improved productivity can be unlocked by increasing smallholders' access to markets and resources through global value chains. Given that smallholders comprise over 30% of the world's population and the majority of the world's poor, smallholder sourcing programs provide a unique opportunity to make large-scale livelihood investments and support poverty alleviation (CGI Smallholder Report, 2016).

Industrialization is a key to economic development and agriculture—supplying raw materials for processing and value addition—is an essential component of that process (Jimmy Smith, ILRI 1). Small-scale farming remains the dominant characteristic of

agriculture in much of the developing world including Ethiopia. Existing evidence does not support those who believe that large-scale farming is associated with higher productivity. Most attempts to establish a systematic causal relationship between land size and productivity have led to inconclusive results, thus making it difficult to derive generic policy implications. And yet, until recently, neither governments nor the international donor community recognized the significant contributions of smallholders to agricultural development, in particular, and to economic development in general. This was exacerbated by the poor quality of data on the number of smallholders, their contribution to total agricultural production and GDP, and their share in labor force participation. While this study focuses on small farmers, it should not be construed as suggesting that large farms do not have a place in developing countries' agricultural systems.

Smallholders will continue to play a key role in the attainment of global food security objectives. The latest estimates show that feeding a world population of 9.1 billion people in 2050 would require raising overall food production by some 70 per cent between 2005-2007 and 2050 (FAO, 2015). Production in developing countries would need to almost double. This implies significant increases in the production of several key commodities. Annual cereal production, for instance, would have to grow by almost one billion tons. The attainment of this objective should not be taken lightly, as the food crisis of 2008 reminded governments the world over.

Working with smallholder farmers also makes business sense. Contrary to the belief that dealing with such farmers is too costly, our case studies – ranging from large corporations to NGOs - prove that this can be a profitable endeavor. Among our case study examples, buyers of produce get 2-24% additional net margins. For instance, the Kenya Tea Development Agency, an organization that manages the tea value chain on behalf of over half a million smallholder farmers (or 60% of Kenya's tea production), works through cooperative factories. It makes business sense to work with and for smallholder farmers, to help them achieve higher incomes and often transform their lives in the process. But a balanced and stable relationship is essential to ensure both sides – the farmers and the organization working with them - grow and thrive (HYSTRA).

1.2 Statement of the Problem

To meet the growing demand, world food production need to increase by 50% by 2030. According to the World Bank, in emerging markets three out of four low-income people depend directly or indirectly on agriculture for their livelihoods. The right types of investments in agriculture are essential to food security and industrialization for a growing population (Kanayo Nwanze, IFAD).

Though puzzling to many skeptics, a number of empirical studies reveal the existence of an inverse relationship between farm size and productivity. They show that ceteris paribus, smaller farms have higher yields than larger farms. This has been one of the most astonishing facts in development economics. Further to Chayanov's discovery of the existence of an inverse relationship between farm size and productivity among Russian farms (Chayanov, 1926), in what is generally considered as a seminal work on this topic, Sen (1962) noted that small Indian agricultural households were also much more productive than their larger counterparts.

In addition to contributing to food security, smallholders make rational economic choices, responding to incentives and contributing to economic growth and industrialization process of a country. Investing into the productivity of smallholder farmers can increase their income significantly and durably, transform their lives and boost the revenues and profits of the businesses serving them and fuel up the industrialization process of a country.

Working on small farm productivity stands among the most exciting opportunities to increase the income and transform the lives of many of the 1.5 billion rural poor living off small farms. When buyers of produce or sellers of products and services work with smallholder farmers, the latter benefit in multiple ways: Farmers preserve the fertility of their land better by adopting more sustainable agricultural practices. They increase yield and quality of their production. And they enjoy better market access and higher prices, as well as get access to better quality inputs and equipment, often at a better price.

Food price volatility has had a dramatic impact on the food security of poor households in developing countries. Equally serious has been the impact of long-term trends such as a slowdown of agricultural productivity growth, urbanization and an increasingly sophisticated supply chain. These changes have led governments and development organizations to refocus on smallholder farming as a business activity linked to markets through efficient value chains (FAO).

Hence, undertaking an in-depth study on the participation of smallholder malt barley growers by taking sample of malt barley growers and other market actors will have vital contribution for the promotion and development of all inclusive, efficient, and transparent market platform.

1.3 Objective of the Study

The general and specific objectives of the study are indicated below;

1.3.1. General Objective

The general objective of this study is to find out and analyze the roles of smallholder farmers to the import substitution and industrialization of Ethiopia.

1.3.2. Specific Objectives

The specific objectives of the study are;

- To identify the current roles of smallholder farmers and find out their role to the import substitution and industrialization agenda of Ethiopian and how to foster their contribution in the future economic development of Ethiopia.
- To identify and analyze the key constraints, opportunities and proposed solution to for Ethiopian smallholders to be seen as a real business partners and supplier of raw material to the industry.

1.4 Research Questions

In light of achieving the objectives stated above, the research intends to answer the following questions:

- How smallholders' and their organizations' are positioned in relation to malt barley production in Ethiopia?
- Can smallholders be a real business partners for companies?
- How is the performance of smallholder farmers compared to large farms (Quality and quantity of produce)?
- Can smallholder farmers play a vital role in import substitution and industrialization agenda of Ethiopia?
- What is feasible for Ethiopia to achieve import substitution agenda? Active smallholder participation or promotion of large farms (which is often correlated related with land grabbing)?
- Is the Ethiopian malt barley sector competitive with the international market? If not, how can we address this?
- What role companies (Breweries and Maltsters) should play to sustain the Ethiopian malt barley sector?
- What are the factors that affect the performance of smallholders to compete with other players locally and internationally?

1.5 Scope of the Study

The study focuses on identifying and analyzing the role of smallholder farmers in the import substitution and industrialization of Ethiopian agenda. The study describes the current situation of smallholders, changes and opportunities and future proposals to foster their capacity to be a reliable business partners and suppliers of raw materials to the industry. It clarifies whether the Ethiopian government needs to focus on large farms or develop the smallholders side by side. The study also analyzes the future of smallholder malt barley producers in Ethiopia – merging their land or land grabbing or absorbs them into the industry or develops them to a real business partners in the growing economy.

The study captures the views of all relevant parties including smallholder farmers, their organizations, support providers, industries, and policy makers. This analysis was done by taking into the case of malt barley producers in Arsi, West Arsi and Bale Zones of Oromia National Regional State.

2. RESEARCH DESIGN AND METHODOLOGY

Choosing appropriate research design reflects decision on the priorities being given to the research process. For this particular study, a descriptive research design will be employed. Descriptive information often provides a sound basis for the solution of marketing problems (Shajahan, 2004). Descriptive research is marked by prior formulation of a specific research questions. The researcher already knows a substantial amount to the specific research problems before the project is initiated.

As the researcher has been working for HEINEKEN Breweries Share Company and EUCORD with the capacities of Local Sourcing and Project Leader, the role of smallholder farmers to the import substitution and industrialization of Ethiopia is described well both quantitatively and qualitatively. The research describes the challenges and opportunities of working with smallholders, company's perspectives, smallholders as business partners, smallholders' performance in comparison with large farms, role of malt barley producers in import substitution and industrialization, and views of other chain actors, chain supporters and chain enablers is described well.

2.1 Description of the Study Area

The study was conducted in three Zones of Oromia Region which are dominant malt barley growers in the country. These are Arsi Zone, West Arsi Zone and Bale Zones.

Arsi is one of the zones of the Oromia Region in Ethiopia. Arsi is bordered on the south by Bale, on the southwest by the West Arsi Zone, on the northwest by East Shewa, on the

north by the Afar Region and on the east by West Hararghe. The highest point in Arsi is Mount Chilalo; other notable mountains in this zone include Mount Kaka and Mount Gugu. The administrative center of this zone is in Asella; other towns in this zone include Abomsa, Assasa, Bokoji, Sagure, Kersa, Dhera, Etaya, Arsi Robe, Huruta etc.

The 1994 national census reported a total population for this Zone of 2,217,245 in 438,561 households, of whom 1,105,439 were men and 1,111,806 women; 216,413 or 9.76% of its population were urban dwellers at the time. According to a May 24, 2004 World Bank memorandum, the average rural household has 1.2 hectare of land and the equivalent of 1.1 heads of livestock. 16.5% of the population is in non-farm related jobs.

West Arsi is one of the zones of the Oromia Region in Ethiopia. Based on the 2007 Census conducted by the Central Statistical Agency of Ethiopia (CSA), this Zone has a total population of 1,964,038, of whom 973,743 are men and 990,295 women. 272,084 or 13.85% of population are urban inhabitants. A total of 387,143 households were counted in this Zone, which results in an average of 5.01 persons to a household, and 369,533 housing units. The two largest ethnic groups reported in West Arsi were the Oromo (88.52%) and the Amhara (3.98%); all other ethnic groups made up 7.5% of the population. Oromiffa was spoken as a first language by 87.34% and 6.46% spoke Amharic; the remaining 6.2% spoke all other primary languages reported. The majority of the inhabitants are Muslim, with 80.34% of the population having reported they practiced that belief, while 11.04% of the population professed Ethiopian Orthodox Christianity and 7.02% of the population professed Protestantism.

Bale is one of the zones in the Oromia Region of Ethiopia. Bale is named for the former kingdom of Bale, which was in approximately the same area. Bale is bordered on the south by the Ganale Dorya River which separates it from Guji, on the west by the West Arsi Zone, on the north by Arsi, on the northeast by the Shebelle River which separates it from West Hararghe and East Hararghe, and on the east by the Somali Region.

Based on the 2007 Census conducted by the CSA, this Zone has a total population of 1,402,492, an increase of 15.16% over the 1994 census, of whom 713,517 are men and 688,975 women; with an area of 43,690.56 square kilometers, Bale has a population density of 32.10. While 166,758 or 26.20% are urban inhabitants, a further 44,610 or 3.18% are pastoralists. A total of 297,081 households were counted in this Zone, which results in an average of 4.72 persons to a household, and 287,188 housing units. The three largest ethnic groups reported were the Oromo (91.2%), the Amhara (5.7%) and the Somali (1.44%); all other ethnic groups made up 1.66% of the population. Oromiffa is spoken as a first language by 90.46%, Amharic was spoken by 7.11% and Somali by 1.05%; the remaining 1.38% spoke all other primary languages reported. The majority of the inhabitants are Muslim, with 81.83% of the population having reported they practiced that belief; while 16.94% of the population professed Ethiopian Orthodox Christianity and 1.04% were Protestant.

Ethiopia's major staple crops include a variety of cereals, pulses, oilseeds, and coffee. Grains are the most important field crops and the chief element in the diet of most Ethiopians. The principal grains are teff, wheat, barley, corn, sorghum, and millet. The first three are primarily cool-weather crops cultivated at altitudes generally above 1, 500 meters. Barley is grown mostly between 2,000 and 3,500 meters. A major subsistence crop, barley is used as food and in the production of *tella*, a locally produced beer and for breweries as malt. Arsi, West Arsi and Bale are the major producers of malt barley.

2.2 Sampling Design

The universe of the study is smallholder malt barley producers in Arsi, West Arsi and Bale Zones of Oromia National Regional State. These producers are organized under unions, cooperatives, model farmers/Nucleus farmers and other informal groups supported by support providers. They trade their barley through these organizations to the Breweries and Maltsters.

Hence, the researcher selected the aggregators/suppliers (Unions, coops, model/Nucleus farmers and informal groups) in the three zones (Arsi, West Arsi and Bale) in a balanced and

representative way. These aggregators were selected randomly and then about 150 smallholder farmers were drawn through systematic random sampling technique proportional to the size of each kebele. The systematic random sampling and selecting of the respondent was made based on the list of malt barley producers under those aggregators.

2.3 Data Types and Sources

In order to answer the aforementioned research questions, the researcher collected both primary and secondary data from the relevant sources. Primary data was collected from selected malt barley growers, Malt Barley growers' organizations (cooperatives and unions), Breweries (HEINEKEN, DIAGEO, Habesha and BGI/GMS), Maltsters (AMF and Gondar Malt Factory), appropriate government staffs, NGOs staff (EUCORD, HUNDEE, Technoserve, Self Help Africa, Agriterra, SNV etc), ATA/OACC, Research Centers (Sinana, Kulumsa and Holeta), MFIs (Busa Gonofa, Harbu and WASASA), Seed Enterprises (OSE, ESE) and banks (CBO).

Secondary data was collected from available records and documents. Price and quality data was collected from primary market centers, Oromia Market and Development Organization, malt barley import data, Ethiopian Grain Trade Enterprise and selected traders. Research outputs, Government policies and directives, published and unpublished, and web sources were used to complement the data obtained from primary sources.

2.4 Data Collection Tools

Different tools are used to collect the data so as to develop a near accurate understanding of the topic of research. The main tool of data collection shall be the interview schedule which shall be used to collect data from the chain actors, chain supporters and enablers. Both these schedules were pre-tested. After that, the interview schedules were standardized and finalized. The interview schedules contain mostly close-ended questions, though some open-ended questions were also included.

Both closed and open ended questions will be administered. The first part of the questionnaire will seek information on the characteristics of respondents in terms of gender, age, family size, and level of education. The second part of the questionnaire is planned to capture information on major mean of livelihoods including employment, sideline activities, and farming. The third section will address issues related to sources and means of market information, access to road, access to transport, electricity and credit. The last section will focus on the core idea of the study – malt barley production and marketing. The opened ended questions will be included to allow respondents explain their opinion and feelings towards the prevailing malt barley status (production and marketing).

Customized interview checklists will be used to have the opinions of different stakeholders working with smallholder malt barley growers. The interview would be held with all parties indicated under section 2.3 above. An in-depth discussion will also be held with selected staffs of these organizations.

2.5 Data Analysis Techniques

In the process of analyzing the data, the key variables for analysis were identified. The quantitative data was scrutinized, summarized, verified, edited and arranged. The data was summarized on the data summary sheet and followed by data editing, coding, verification and encoding into the computer.

The data was analyzed with the appropriate statistical tools based on the level of measurement of the variables involved. The statistical tools that were used to analyze the date include simple descriptive statistics such as frequency, mean, percentage, standard deviation and test of associations.

3. ORGANIZATION OF THE STUDY

The study is organized and reported in five chapters. The first chapter gives introduction about statement of the problem, objectives and scope of the study. The second chapter deals

with relevant literatures. This chapter also discuss about the status of malt barley chain in Ethiopia, Government directions related to import substitution especially malt barley and the role of chain supporters and enablers. Under chapter three, the research design and methodology employed for this particular research is discussed. The analysis and summary of major findings are dealt in chapter four. The final chapter deals with the conclusion and recommendations.

4. RESEARCH PLAN AND BUDGET

4.1 Detail Action Plan

S/N	Activity	Schedule			
		April	May	June	July
1	Draft proposal preparation				
2	Final proposal preparation				
3	Prepare questionnaire and checklists				
4	Data Collection				
5	Data Analysis				
6	Writing up: draft Thesis				
7	Submit first draft				
8	Final Theses submission				

4.2 Budget

The total budget required to undertake this study is roughly 165,900 Birr. The source of this budget is primarily from the researcher himself and if possible he will seek some support from the parties involved in the sector.

S/N	Cost Items	Unit	Unit Price	Quantity	Total
1	Researcher per diem and Accommodation	Day	2,000.00	15	30,000.00
2	Enumerators' DSA	Day	500.00	150	75,000.00
3	Stationery	Ls	3,000.00	1	3,000.00
4	Car Rent (15 Days)	Day	2,000.00	15	30,000.00
5	Fuel (15 Days)	Day	1,000.00	15	15,000.00
6	Data Coding and entry	Day	1,000.00	5	5,000.00
7	Contingency (10%)	Ls	7,900.00	1	7,900.00
	Grand Total				**165,900.00**

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