ADDIS ABABA UNIVERSITY

COLLEGE OF DEVELOPMENT STUDIES

CENTER FOR FOOD SECURITY STUDIES

ASSESSMENT OF THE CURRENT STATUS, CHALLENGES AND OPPORTUNITIES FOR SMALL & MEDIUM SCALE EDIBLE OIL PROCESSORS IN ADDIS ABABA, ETHIOPIA

BY:

MASRESHA YIMER KELKELE

NOVEMBER 2021

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A THESIS SUBMITTED TO THE COLLEGE OF DEVELOPMENT STUDIES CENTER FOR FOOD SECURITY STUDIES OF ADDIS ABABA UNIVERSITY IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF SCIENCE IN FOOD SECURITY AND DEVELOPMENT STUDIES

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DECLARATION

I, the undersigned, declare that this thesis is my original work and has not been presented for degree in any other University and that all sources of materials used for this thesis have been duly acknowledged.

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Candidate Signature Date

This is to certify that the above declaration made by the candidate is correct to the best of my knowledge as an Advisor.

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This is to certify that the thesis prepared by Masresha Yimer Kelkele entitled "Assessment of the Current Status, Challenges and Opportunities for Small & Medium Scale Edible Oil Processors in Addis Ababa, Ethiopia," and submitted in partial fulfillment of the requirements for the Degree of Master of Science in Food Security and Development Studies complies with the regulation of the University and meets the accepted standards with respect to originality and quality.

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LIST OF ACRONYMS AND ABBREVIATIONS IN THE TEXT

A. A.	Addis Ababa
AACCSA	Addis Ababa Chamber of Commerce and Sectoral Associations
AAIDB	Addis Ababa Industry Development Bureau
AAAB	Addis Ababa Agriculture Bureau
AASTU	Addis Ababa Science and Technology University
AATB	Addis Ababa Trade Bureau
AAU	Addis Ababa University
BDS	Business Development Support
BEE	Business Enabling Environment
CDS	College of Development Studies
CSA	Central Statistical Agency
CVD	Cardio Vascular Disease
DAG	Diacylglycerols
EARI	Ethiopian Agricultural Research Institute
ECAE	Ethiopian Conformity Assessment Enterprise
ECX	Ethiopian Commodity Exchange
E. C.	Ethiopian Calendar
EEOMIA	Ethiopian Edible Oil Manufacturing Industry Association
EFA	Essential Fatty Acid
EFBPIDI	Ethiopian Food Beverage and Pharmaceuticals Industry Development Institute
EFDA	Ethiopian Food and Drug Administration
EIA	Environmental Impact Assessment
EIAR	Ethiopian Institute of Agricultural Research
ENHRI	Ethiopian Nutrition and Health Research Institute
EPO	Edible Plant Oil
ESA	Ethiopian Standards Agency
ETB	Ethiopian Birr
ETCCPA	Ethiopian Trade Competition and Consumer Protection Authority
FAO	Food and Agricultural Organization
FeSMMIPA	Federal Small and Medium Manufacturing Industry Promotion Agency
FFA	Free Fatty Acids
FQM	Food Quality Management
GAIN	Global Alliance for Improved Nutrition
HACCP	Hazard Analysis Critical Control Point
ICTSD	International Center for Trade and Sustainable Development
IFAD	International Fund for Agriculture and Development
ILO	International Labour Institute
ISO	International Standards Organization
KI	Key Informant
KIs	Key Informants

LDL	Low-Density Lipoprotein
LMICs	Low and Middle Income Countries
MAG	Monoacylglycerols
MoT	Ministry of Trade
MoTI	Ministry of Trade and Industry
MSME	Micro, Small and Medium Enterprises
MUDH	Ministry of Urban Development and Housing
MUFA	Monounsaturated fatty acids
NBE	National Bank of Ethiopia
NCD	Non Communicable Diseases
NFCS	National Food Consumption Survey
NGOs	Non- Governmental Organizations
OSH	Occupational Safety and Health
PHVO	Partially Hydrogenated Vegetable Oils
PO	Plant Oil
PUFA	Polyunsaturated fatty acids
SDGs	Sustainable Development Goals
SFA	Saturated Fatty Acids
SFVC	Sustainable Food Value Chain
SPS	Sanitary and Phytosanitary
SME	Small and Medium Enterprise
Sq. Km.	Square Kilometer
TAG	Triacylglycerols
UNICEF	United Nations Children's Fund
UNIDO	United Nations Industrial Development Organization
USDA	United Stated Department of Agriculture
VAT	Value Added Tax
VCA/VCF	Value Chain Approach/Value Chain Framework
WFP	World Food Programme
WHO	World Health Organization

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ABSTRACT

This study was carried out with the objective to review the current policies, regulations and practices, current status in the small and medium enterprises (SME) edible oil sub sector, and identify the challenges as well as opportunities for the SME edible oil processing sub sector in Addis Ababa (A. A.), based on a descriptive research design, & using quantitative and qualitative data, from the SME edible oil processors, key informants, pertinent governmental regulatory and support institutions, & Advocacy groups/Associations, by applying the (input-market) value chain approach. The findings of the study indicated that the demand for edible oils was met predominantly through imported palm and non-palm edible oils and insignificant domestic edible oil supply, and distributed through shemachoch retail outlets and private retail shops, and characterized by serious availability and accessibility challenges for consumers in A. A. The major current policies, regulations & practices, challenges and opportunities across the input-market chain of the SME edible oil sub sector in A. A. were assessed & analyzed. The identified major challenges facing the SME edible oil processors in Addis Ababa included: the significantly weakened current status of the SME edible oil processors; edible oil related policies, regulations and practices biases & resulting market distortions, such as import duty and VAT exempted huge import and distribution of palm edible oil, focus of support towards large scale processing; application of VAT tax system on domestic edible oil supply; limitations of palm edible oil in proper household targeting and existence of distribution malpractices, high export orientation of oilseed crops; regulatory requirement for refining of edible oils; the raw material supply (shortages, quality related problems and rising oilseed crops prices), significantly low capacity utilization, much lower than 50%; significant lack of SME edible oil-dedicated technical training, capacity building and related supports and incentives, as well as processing technology & access to financing & infrastructural challenges, …, resulting in the SME edible oil processors' marginalization and becoming the 'missing middle'. The identified opportunities included: increasing population, huge domestic consumer demand, economic growth, well-developed experience in A. A. in SME edible oil processing, marketing and consumption in A. A.; Ethiopia as a major grower, and origin, of some of the oilseed crops & its conducive agro ecological condition for oilseed crops production, and overall government policy and commitment for agriculture and agro processing investments. Finally, the study identified recommendations and strategies for action, including implementing institutions, in order to address the pressing lack of SME edible oil dedicated policy support & incentives, edible oil processing, and food safety and quality management capacity building supports, and a conducive overall business enabling environment to enable SMEs in A. A. to survive and grow, and contribute to sustainably increase edible oil availability in A. A., to ensure accessibility at the household level, and to attain adequate food utilization in edible oils at the individual level in A. A., thereby also contributing to the import substitution effort in the country.

Keywords: *Ethiopia, SME edible oil processing, Policies, Regulations, Challenges & opportunities, Value chain*

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

Edible oil is one of the types of food ingredients that household and institutional consumers frequently use, and make expenditure on, and is extensively used in different food preparations in Ethiopian diets often on a daily basis. FAO (2011) discussed that edible oil is one of the elements in the daily dietary composition of consumers in the world, including Ethiopia, in terms of per capita calorie share & volume share supplied by the commodity. There are different types of edible oils, depending on the raw material used to process edible oil, broadly classified as vegetable oils and animal fats (Popkin, 2003). Besides, edible plant oil (EPO) is obtained from the seeds, pulps, fruits, and plumules of certain plants, consisting of herbaceous and woody plants (Zhou et al., 2020).

Regarding vegetable oil composition, edible fats and oils are mainly composed of triacylglycerols (TAG), accompanied by lower levels of diacylglycerols (DAG), monoacylglycerols (MAG), and free fatty acids (FFA). Minor components include phosphatides, sterols, fatty alcohols, fat-soluble vitamins and other compounds. The compositional data of both macro- and micro-components of vegetable oils may significantly differ depending on the cultivar, geographical location, climate, maturity stage of the fruit, extraction, and/or refining process (Rodriguez-Estrada, Paciulli, Cerretani, and Chiavaro, 2017). From the conceptual/theoretical perspective, as a food ingredient, edible oil has its own importance for food security (availability, access, & utilization, and their overall stability), and with its implications on nutritional security (which addresses not only how much food the people eat but also what and how they eat and also covers the food production, intra-household food distribution, water and sanitation and health care practices), (Barilla Center for Food Security & Nutrition; Habiba, Abedin, Hassan & Shaw (eds.), 2015), and also appropriate considerations for such factors as food quality and safety, the Rights to Food, and Food Sovereignty in Ethiopia.

The 2030 Agenda for Sustainable Development establishes the objectives affecting food and nutritional security, such as ending hunger and ensuring access by all people to food and also

ending all forms of malnutrition, and the other elements covering SDG 2.1-2.5, with links and relevance to a number of other SDGs goals and targets (ICTSD, 2016; FAO, IFAD and WFP, 2016). Edible oil can play important role in food fortification processes of micronutrients, and towards addressing malnutrition, such as contributing to the mandatory fortification requirement of edible oil with vitamin A in Ethiopia (ENHRI, 2013); while edible oil processors, as MSMEs (Micro, Small and Medium enterprises) could also playing a major role in employment creation, as MSME enterprises are playing the leading role globally in employment creation (ILO, 2019).

Concerning the global perspective, edible oil is an important traded commodity. As discussed in Rosillo-Calle, Pelkmans, and Walter (2009), the most globally traded vegetable oils include mainly, palm oil, soy bean oil, rapeseed oil, and sunflower oil. Other globally traded vegetable oils also include: peanut, cotton seed, palm Kernel oil, coconut oil, and olive oil. According to the information provided by the U.S. Department of agriculture (USDA), the market of EPO was close to 203 million tons in 2019 (Zhou et al., 2020). Besides, there are two major international markets for vegetable oils: i) food which represents over 80%, and ii) industrial uses including biodiesel. World vegetable oil production has increased continuously in the past decades, although unevenly. The main growth has been in palm oil (more than 30%), soybean oil (28%), rapeseed oil (15%) and sunflower oil (9%). of vegetable oil production in 2007; with Malaysia and Indonesia that account for between 80-85% of world's production. Smaller fractions are produced in Sub-Saharan Africa and South America (Rosillo-Calle et al., 2009). Besides, on vegetable oils, about 85% of the vegetable oil is used for food and feed purposes and 15% for industrial uses like paints, plastics, lubricants, and specialty chemicals, while other applications of edible oil are shortening (semisolid fat used in food preparation) and margarine (Wijnands, Biersteker and Loo, 2009).

Some of the global perspectives regarding edible oil include: demand and supply, volume, price issues, edible oil processing technology, food safety, decent work environment, including ethical practices in edible oil processing, distribution and marketing chain of activities, bio fuel and other nonfood uses or applications of oil crops, environmental and sustainability concerns (e.g., deforestation for big palm plantations) (Nicholas, Fanzo, and Manus, 2018; Rosillo-Calle et al., 2009; FAO/UNIDO/ILO, 2012; UNIDO, 2011). Thus, globally, countries are also designing and implement different strategies to build domestic edible oil production and supply capacity, such as India in Asia, and many African countries.

From a nutritional perspective, citing different research works, García-Dorado (2018), reviewed that though palm oil is an affordable source of calories, it is also high in saturated fats and that its increased consumption may cause CVD, diabetes, and obesity.

At the continental/regional level, African countries, such as Tanzania, South Africa, among others, are making efforts to promote domestic edible oil processing industries (Jahari and Kilama, 2018). On challenges facing the edible oil sector, various farm to market and institutional challenges are affecting the edible oil sector in Tanzania (Kajimbwa, Kondowe, and Mhanga, 2010) and also in Mynamar (Myint, Gilani, Kawase and Watanabe, 2020). Regarding the national perspectives of themes of the research, the national perspective, in Ethiopia, as in various countries in the world, the demand for edible oil has been increasing following increasing population, urbanization, and economic growth (FAO, 2017; FAO, 2004).

In Ethiopia, edible oil is also considered or classified by the government as one of the strategic basic necessity commodities for consumers, along with sugar and wheat flour, attracting major attention for timely procurement through government parastatals and private importers, and its distribution through local public trade shops (*shemachoch*) and private trading shops. Ethiopia has a long history in production and supply of edible oil for the local market mainly through domestic production of edible oil using locally produced oil crops, such as sesame seed and niger seeds (with its special aroma), rape seed, cotton seed, sunflower, linseed, and ground nuts, including soya bean (a legume), through mainly small scale edible oil processors located at the village levels, and few edible oil processing industries in the country, estimated at more than 1,000 (FAO/UNIDO/ILO, 2012), or about 1,500 (Sertse, Wildt and Danse, 2011). However, in due course of time, the major oil crops such as sesame seed and *niger* seed have also become highly export-oriented, making oilseeds export the second largest export earning crops after coffee.

From the food & nutritional security perspective, edible oil can play an important role as a vehicle for fortification of vital micronutrients and also contribute significantly to reducing the large scale dependence on imported edible oil, with major implication on foreign exchange requirements. On local and specific thematic issues, food security is concerned not only with availability of food but also its accessibility. In this regard, the domestic edible oil processors have been located at the local/village levels in urban and rural areas, with

convenience to consumers, and are generally considered to be small scale and using largely very traditional or older edible oil processing technologies. In rural and also urban areas of Ethiopia, there has also been wide practice of use of animal fats, such as butter, though prices have become very expensive. As with the national context, edible oil processors in Addis Ababa are facing a similar situation. Most of these edible oil processors are said to be closed while others are facing various problems to produce and supply edible oil locally, leaving consumers with no alternative than buy the imported cheaper palm oil, or other higher priced imported edible oils. Thus, this research study aimed to make an assessment of the current status and challenges and opportunities for the small and medium edible oil processors in Addis Ababa.

1.2 Statement of the Problem

Ethiopia is a major producer of oil crops next to cereals and pulses. The oilseed crops produced in Ethiopia cover *niger* seed, rape seed, sesame seed, cotton seed, sunflower, linseed, and ground nuts, including soya bean (a legume). In fact, Ethiopia is among the top five leading oilseed producing countries of the world. Next to coffee, oilseeds are the second largest export commodities that earn hard currency for the country. More than three million small holders are involved in the oilseeds, pulses and spices production (EIAR). The country is well-known as exporter of some of the oil seeds, such as sesame seed and *Niger* seed. Ethiopia's oilseed sector plays an important role in generating foreign exchange earnings. The three major oilseed crops (sesame, soybean, and niger seed) contribute to nearly 20% of Ethiopia's total agricultural export earnings, second only to coffee. In 2018/19 (Oct-Sep), exports of sesame, Niger seed, and soybeans generated nearly $430 million in export earnings. In addition, the oilseed sector provides income to millions of growers and others market actors along the value chain (USDA, 2020).

Ethiopia has a long history of domestic production and supply edible oil, through nationally distributed majority of village or local level small scale edible oil millers, and very few edible oil processing facilities in different urban and rural parts of the country, by utilizing domestically sourced oilseed crops as their raw material. In fact, this makes the edible oil sector a good example of having a higher linkage with the agriculture sector, while most industries in the country have high import dependence, of 60% or more, for their raw materials and other input needs (CSA, 2020).

In Ethiopia, the weakening of domestic edible oil production and rising demand for edible oil implies the need for imports (about 85% of supply) to meet the demand-supply gap. However, import requires allocation of foreign exchanges from the meager exports earnings of the country; which, as per FAO (2011), forces cash-strapped countries to divert the scarce foreign exchange away from important developmental agendas. In line with this argument, Ethiopia's rising import bill for edible oil is also aggravating the already alarming balance of trade deficit. Ethiopia's overall national net trade balance deficit was 13 billion USD in 2018/19 Ethiopian fiscal year (NBE, 2019). This increasing edible oil imports is resulting in a huge foreign currency demand valued at nearly 550 million USD in 2018; with volume of import expected to reach 584,000 metric tons in 2020 (USDA, 2020); and also the introduction imported edible oil price subsidy budgetary allocation by the government, including capping of local selling prices to make it affordable to the majority of consumers; recurring shortages of edible oil in the market, and the need for developing new taste for the consumers. Furthermore, the limited domestic production of edible oil has also reduced the supply of the by-product, oil cake, normally used by the livestock sector as animal feed.

Besides, from the nutritional security perspective, edible oil has a major role to play both as a food and also as a vehicle for fortification of vital micronutrients (fortificants), such as for Vitamin A, and in the effort to meet the targets of the Sekota Declaration (2016), which is aligned to the SDGs (GAIN, 2020a).

On research gap, there exists major paradox in the edible oil sector of Ethiopia. On the one hand, the country is the origin for some the oil seeds, with oil seeds as the major agricultural commodity produced in Ethiopia, following cereals and pulses, and also has long-held tradition and experience in domestic production and supply of edible oil to consumers; while on the other hand, the country relies predominantly on import of edible oil to meet its domestic consumption needs, with large scale export orientation of the oilseed crops, recurring shortage and rising price of edible oils for consumers, coupled with the significant weakening and closure of many of the Small and Medium edible oil processors located at the village levels.

1.3 Research Objectives

1.3.1 General objective

The general objective of the research was to review the current policies, regulations and practices affecting the SME edible oil sub sector, and identify the internal & external challenges, and opportunities pertaining to the SME edible oil processing enterprises in Addis Ababa, Ethiopia, 2021.

1.3.2 Specific objectives

The specific objectives of the study were to:

- Review the current policies, regulations and practices affecting the SME edible oil processors in Addis Ababa,
- Identify the current internal and external challenges for the SME edible oil processors in Addis Ababa in the lens of the value chain approach, and
- Identify the current opportunities for the SME edible oil processors in Addis Ababa in the lens of the value chain approach.

1.4 Research Questions

- What were the current policies, regulations and practices affecting the SME edible oil processors in Addis Ababa?
- What were the current internal and external challenges for the SME edible oil processors in Addis Ababa?
- What were the current opportunities for the SME edible oil processors in Addis Ababa?

1.5 Significance of the study

This study has a major significance in making a descriptive research regarding the current scenarios causing the significant weakening of the Small and Medium edible oil processors, and the pressing challenges to be addressed and any potential opportunities to be tapped by capturing the in-depth perspectives of the Small and Medium edible oil processors, KIs as well as that of the regulatory and support institutions and their current policies and practices.

Besides, this research is expected to have high significance to reach at findings that would help bridge the information & trust gaps between the government bodies and the edible oil processors and inform government policy towards ensuring sustainable development of the domestic SME edible oil sub sector & the edible oil industry in general, and for contributing

to ensuring food & nutritional security, and proper fulfillment of the edible oil consumers' needs, tastes & preferences. This will creates opportunity for the governmental pertinent agencies to better know the existing situation, current challenges and opportunities in the SME edible oil sub sector; and for devising and implementing appropriate specific policies and strategies on the oilseed crops/edible oil farm to market chain & the overall business enabling environment towards developing & upgrading the domestic edible oil value chain. Finally, the study is also expected to aware and motivate multidisciplinary and interdisciplinary research/scholarly work in edible oil sector development in the country.

1.6 Scope and Limitations of the study

1.6.1 Scope of the study

Regarding the spatial scope, this study covered the Capital City, Addis Ababa; while concerning the temporal scope, the study was carried out within the research period of April – June 2021. The thematic scope covered the small and medium scale edible oil processors in the specified locations. It included internal and external challenges and existing opportunities, as well as current status of the edible oil processing enterprises, based on the value chain framework and approach.

1.6.2 Limitations of the study

This study covered the available small and medium sized edible oil processors located in Addis Ababa, following their significant closure or suspension of activity by some, or change of lines of business by others. As such, it did not cover large scale processors or other edible oil processors located in the different parts of the country. However, most, if not all, of the conclusions from this study, largely reflect on the current status and performance situation of small and medium sized edible oil processing enterprises in the country.

1.7 Definitions of terms

Edible Oil: is a type of food or food ingredient frequently used in different kinds of food preparations, and is broadly classified as vegetable oils and animal fats (Popkin, 2003). This study covers edible oil extracted from oilseed crops.

Small and Medium scale Edible Oil Processors: Micro enterprises are those with employment less than 6 and capital of 100,00 ETB or less; while Small scale enterprises are those with 6-30 employees, and with asset valued at 100,001 – 1,500,000 ETB (MUDH, 2012). Besides, based on production capacity, Small, Medium and Large scale enterprises

cover less than 500 liters per day, 500-5,000 liters per day, and 5,000 & above liters per day respectively; while CSA (2020) takes a different classification of small and medium & large enterprises based on manual versus power driven and number of employees.

1.8. Organization of the Paper

The thesis has five chapters. The first chapter deals with the introduction, problem statement, research objectives and research questions of the study, significance of the study, the scope and limitations of the study, and definition of terms. Chapter two presents the related literature review sections, covering the theoretical and empirical works related to the SME agrifood chain and the edible oil processing sub sector related challenges and opportunities and also depicts the conceptual framework of the study. Chapter three discusses the description of the study area, research methods and data source, methods of collection and analysis, including ethical considerations. Chapter four presents the research results and discussions, while chapter five, makes conclusions and recommendations based on the findings of the study.

CHAPTER TWO: REVIEW OF RELATED LITERATURE

2.1 Theoretical Literature Review

2.1.1 Food Security and Development Perspectives

The concept of food security has its own genesis, and reaching and the definition of food security has been refined further during the WFS 2009 in which beside *the four pillars of food security: availability, accessibility, utilization and stability*; the nutritional dimension become an integral part of the food security concept, while making it imperative for concerted actions at all levels, namely, individual, household, national, regional, and global levels, and coordinated efforts and shared responsibilities" across institutions, societies, and economies to tackle food insecurity effectively (Habiba et al., (eds.), 2015).

Food access issues should be approached by integrating the availability of food and the absolute quality and safety (i.e., safeguarding consumers and public health). In this respect, food security and nutritional security has linkages and complementarities. Thus borrowing from both definitions, "food and nutrition security" can be defined as a situation that exists when all people at all times have physical, social and economic access to food, which is consumed in sufficient quantity and quality to meet their dietary needs, requirements for growth and food preferences, and is supported by an environment of adequate sanitation, health services and caregiving. This allows for appropriate utilization of food and nutrients by the body and therefore creates the conditions for a healthy and active life. Nutrition security therefore implies an optimal nutritional status (Ruel, 2013).The author further discussed the UNICEF conceptual framework that identifies the multifactorial causality of undernutrition, in which nutritional status is influenced by three broad factors: food, health and care.

The 2030 Agenda establishes the objectives affecting food and nutritional security, setting ground-breaking new commitments for both developed and developing countries: to end hunger as well as "all forms of malnutrition" by 2030, which also contributes to – the achievement of the other goals of the 2030 Agenda (ICTSD, 2016; FAO, IFAD and WFP, 2016).

The Small and Medium edible oil processors can be considered as part of the micro and small and medium size enterprises, and according to ILO (2019) SMEs responsible for more than two thirds of all jobs worldwide, and also account for the majority of new job creation. In this

respect, small and medium-sized enterprises (SMEs) play an important role in food production, food processing and retail—and thus in the overall food value chain (GAIN, 2020b).

Besides, the food and agriculture sector is crucial in the effort to ensure food and nutritional security. In its publication entitled "The future of food and agriculture Trends and challenges" FAO (2017) discussed that there are a number of global trends that are influencing food security, poverty and the overall sustainability of food and agricultural systems. In this respect, FAO (2004) identified the main drivers to changes in food systems and dietary patterns, such as urbanization, increased income, capital flow and market liberalization.

From the International Trade, Food Security and Development Perspectives, Ethiopia has the comparative advantage in production and utilization of its oil crops for agro processing, but we observe heavy reliance on imports. Currently, there is huge reliance on imports. According to Bailey, Rob and Willoughby (2013), dependence on trade exposes a country to two principal risks, namely, supply risk and price risk. Besides, improving living standards in emerging economies, population growth together with changing diets and the expansion of biodiesel, are new trends that will have a major impact in the future development of this sector (Rosillo-Calle et al., 2009).

Not only is import the major source of domestic edible oil supply in Ethiopia, but also consumers face recurrent shortages in the market. A study on response of consumers to rising prices and shortage situations in South Africa, Mkhawani, Motadi, Mabapa, Mbhenyane, and Blaauw (2016) indicated that consumers follow different strategies ranging from buying food in bulk, home production (e.g., vegetable gardens), to buying cheaper brands and also less nutritious foods; and in which the price increase in cereal, maize meal, bread, sugar, tea, oil, salt, flour and other staples forces the poor to economise on the quantity and quality of their meals. On this, FAO (2011) discussed that for cash-strapped countries, persistent food import becomes a problem when the high and rising food import bills take money away from other important development agendas without resolving food insecurity.

Emphasizing the importance of not just larger population and economic growth, but also trade policy reforms, in their study on India's edible oil sector, Dohlman, Persaud, and Landes (2003) identified that important potential factors to creating rising demand for edible oil, apart from economic growth and population growth, and import favouring external trade

policy and domestic price support systems, are also the existing weakened status of the domestic oil crop agricultural sub sector.

2.1.2 Challenges & Opportunities

In any economic sector, there could be a number of factors that create opportunities for growth or challenges for failures and low performances of SME sectors. In particular, GAIN (2020b) noted that small- and medium-sized enterprises (SMEs) play an important role in food processing and retail—and thus in the overall food value chain, providing about 80% of total calories in sub-Saharan Africa, as well as other small actors along the value chain. Besides, there are different challenges and opportunities that could affect the edible oil sector. For instance, in the case of India, Gautam, Sharma, Gautam, and Gautam (2019) discussed the strength, weakness, opportunities and threats in the edible oil sector in India. They identified various challenges and opportunities covering the different stages of the value chain, covering the raw material/oil crops production, processing, marketing and consumption/demand stages.

Competitiveness of producers or processors is important to meet consumer need in the market. On the lack of competitiveness on both domestic and international factors in edible oil or agro processed products, Bouët, Goundan, and Zaki (2020) noted that there is lack of competitiveness of African countries in the main cereals and cassava, vegetable oils, and sugar value chains, even if a few exceptions appear; stressing the major importance of many domestic factors, before looking for factors outside Africa. Besides, Kapoor and Sharma (2016) identified the key challenges in the Indian food processing industry as: lack of processing in the perishable segment, lack of adequate storage facilities along the value chain, lack of processing technology, poor value chain linkages, lack of skilled manpower, SME competitiveness, and lack of branding and packaging.

Moreover, Zargaraan et al. (2019) in a study on Challenges of Edible Oils from Farm to Industry: Views of Stakeholders in Iran, to explore stakeholders' views about quality and safety of edible oils and proposed policy options to address these challenges, highlighted six major themes identified by stakeholders in the edible oil industry, namely, safety, imports, factory, edible oils' monitoring, edible oil industry, and building consumer trust. They found out that in order to build and maintain effective edible oil safety systems, strong links must be established between all sectors responsible. The key players need to have access to reliable

and up-to-date information so that timely collective action can be taken. It also recommended that government face up to this task and lead the way, and the need for developing strategies for the edible oil industry.

2.1.3 Agribusiness and the Business Enabling Environment (BEE)

Improving the BEE is vital for enhancing agribusiness growth and development. On this, FAO (2013) elaborated that the agribusiness sector, which comprises the business activities performed from farm to fork, is a major generator of employment and income worldwide. On the critical importance of Chain Context or the enabling environment; while Attaie and Fourcadet (2003) highlighted that a sound environment provides the foundation in which a chain can develop and grow.

2.1.4 The Value Chains Framework & Approach

Regarding the meaning of value chain, value chains encompass the full range of activities and services required to bring a product or service from its conception to sale in its final markets—whether local, national, regional or global. Value chains include input suppliers, producers, processors and buyers that are supported by a range of technical, business and financial service providers. Value chains have both structural and dynamic components. The structure of the value chain influences the dynamics of firm behavior and these dynamics influence how well the value chain performs (USAID, 2021). Besides, Collins, Dent, and Bonney (2015) further elaborated that value chain involves a multidimensional diagnosis of the current state of the system, covering material flow, communication and information flow, and governance of the chain (examining how the relationships within and between people and businesses in the chain are managed).

As discussed in Kumar & Rajeev (2016), value chain encompasses the full range of activities and services required to bring a products or services from its conception to sale in its final market. In relation to this, FAO (2014) also introduced the concept of sustainable food value chain (SFVC) and defines it as: the full range of farms and firms and their successive coordinated value-adding activities that produce particular raw agricultural materials and transform them into particular food products that are sold to final consumers and disposed of after use, in a manner that is profitable throughout, has broad-based benefits for society, and does not permanently deplete natural resources.

As discussed in FAO (2014), the VC is a dynamic system and it is essential to understand its dynamics (how the system evolves over time) and the factors that drive and (can) influence them; and reforming the core/primary and support functions in a value chain do help to improve firm competitiveness. USAID (2021) defined competitiveness as the ability of a firm or industry to develop and maintain an edge over market rivals. This can be achieved through a combination of three strategies: producing and delivering goods and services more efficiently, differentiating products or services through quality standards and branding, and/or exploiting new market demand.

Finally, the value chain approach is linked to the dimensions of food security. On this, a USAID (2021) study further highlighted that a food security lens helps value chain practitioners to identify the potential impact of activities on food security and develop mitigation strategies for any possible negative impacts. Moreover, it can help to guide value chain programs in understanding what strategies can create positive food security outcomes.

2.2 Empirical Literature Review

2.2.1 The Domestic Edible Oil Processing Sub Sector

Concerning the Domestic Oilseeds and Edible Oil Sector, the very diverse Ethiopian landscape & agro-ecological zones enables for the cultivation of a wide range of oilseeds, for which Ethiopia has a long-standing tradition. Oilseeds are also a major export earning commodity for Ethiopia. After coffee, oilseeds are the country's second largest export earner, accounting for about 18% of the total foreign exchange earnings at a value of USD 382 million in 2010. In total, the oilseed producing sector supports the livelihoods of about three million Ethiopian farmers, as well as traders, transporters and oil millers (UNIDO, 2011). Moreover, as noted in Wijnands, Biersteker & Hiel (2007), Ethiopia has an attractive portfolio of high value specialty oilseeds for export markets. Exports actually consist of sesame and *niger* seed, for which there is a growing demand in the world market. The growing demand in the world market for these specialty products and the available capacity to expand production could make oilseeds turn into one of the engines of economic growth of Ethiopia

A study on oil crop production in Ethiopia shows that the major challenges are increasing yields, reducing unit cost prices and increasing income from exports. Despite the high export of oil crops, Ethiopia is at the same time importing a variety of oil substitutes. Especially

palm oil imported (import duty and tax free) from Malaysia is widely used for cooking, given its superior price to quality ratio in comparison to domestically produced oil. This hinders a transformation to Ethiopian production of edible oils out of oilseeds (Ruters, Boere, Willems, Dawit and Dolfen, 2015). In fact, Small and Medium enterprises have been important in domestic edible oil production and supply to consumers in the country. UNIDO (2011) indicated that most domestic oil processing is undertaken by an estimated 850 small-scale and micro oil processing plants, accounting for ninety-five per cent of the manufacturing base of the edible oil industry. Besides, unlike most manufacturing or even food processing industries, the edible oil processing establishments relay predominantly on domestically produced oil crops, with import-dependence of less than 2%. This opens windows of opportunity to tap for further sectoral and national growth opportunities (ILO, 2013).

Most of the oilseeds are crushed locally, without any refining. In rural areas crude oil is preferred for cooking purposes. The number of processors of refined oil was estimated by the visited industry at 9. The production of refined oil in Ethiopia is very limited (about 20,000 tons). More than 1,000 small (local) crushers (mostly with Chinese/Indian machines) are operational on village level. The oilseed crushing and refining industry produces for the domestic market. Most of the oil is consumed as crude oil. Ethiopia is a net importer of refined oil, mainly refined soybean and palm oil (Wijnands et al., 2007). A review on the domestic edible oil production in Ethiopia by Ruters et al. (2015) highlighted that despite the large production of sesame and linseed, Ethiopia still imports large amounts of edible oil, mainly palm oil. Palm oil is mainly imported from Malaysia, Singapore, and the United Arab Emirates. Local production is only able to meet about 5 % of the demand. Only 15 oil-processing plants are annually processing 40,000 tons good quality edible oils; otherwise 850 informal, small and micro scale cottage oil seed processors are extracting crude oil. In the high-end market, especially in Addis Ababa, sesame seeds are sprinkled on bread, bagels, and hamburger buns. Wijnands et al. (2009) indicated oilseed crushers produce around 20% of the domestic consumption of edible oil, while 80% is imported as palm oil, sunflower, and soybean oil.

Moreover, oilseeds do not only contain oil but also protein, thus the lack of by product, oil cake, is currently affecting the animal feed industry as well, while from the regulatory perspective, since 2008, in the food regulations it has become obligatory to refine plant oils

for human consumption; in which the small-scale millers cannot fulfill this obligation (Wijnands et al., 2009).

2.2.2 Edible Oil Nutritional, Components and Consumption Aspects

On Vegetable Oils Nutritional and Consumption Aspects, the advantage of mono-unsaturated fatty acids (C18:1, unsaturated fatty acid with only one double bond, oleic acid) is the lower melting point, but a higher oxidative stability than the polyunsaturated fatty acids (C18:2 and C18:3). For frying oils a high C18:1 content is preferred over C18:2 and C18:3, because of the higher oxidative stability (does not get rancid easily and can withstand higher temperatures). Poly-unsaturated fatty acids (C18:2, C18:3) are interesting for the paint industry and the flooring (Wijnands et al., 2009).

On the major components, the differences between the various types of vegetable oils mainly concern the fatty acid (FA) composition. Specifically, in vegetable oils, FA are mostly found as glycerolesters, where triacylglycerols (TAG) represent at least 95% of a crude oil. In a vegetable oil, FA are not distributed in a random manner within the glycerol molecule, being the reaction promoted by enzymes. On the minor components, among the minor glyceridic constituents of the oils, the class of molecules known as phosphatides or phospholipids is present in trace levels (0.1%–3%) in crude oils. Sterols are another class of alcohols found in vegetable oils (Rodriguez-Estrada et al., 2017).

Ethiopia is the second-most populous country in Africa, with majority of the population living in rural areas, but with rising urban population. Generally, urbanization is associated with a nutrition transition and an increase in risk factors for non-communicable diseases (NCDs). However, a study by Sheehy et al. (2019) conducted to determine how the nutritional composition of the Ethiopian food supply has changed over the last 50 years (1961-2011) and whether there is evidence of a nutrition transition found out that the Ethiopian food supply is still remarkably high in complex carbohydrates and low in sugars, fat, protein, and micronutrients and that there is little evidence yet of changes that are usually associated with a nutrition transition.

2.2.3 Global Trade and Production of Edible Oil

Concerning the large scale import and consumption of palm oil, a relevant research discussed that the transition to a “Westernized” diet in developing countries is usually accompanied

with rapid increases in the consumption of vegetable edible oils, rather than in animal fat consumption (Popkin, 2003). In the case of India, following the liberalisation of the edible oils sector in 1994, consumption of imported oils rose rapidly. From a nutritional point of view, reviewing the work of researchers, García-Dorado (2018) highlighted that palm oil is an affordable source of calories, but is also high in saturated fats compared to the oils traditionally consumed in Indian diets (Downs, 2014).; saturated fats (as well as trans fats) have been linked to increased risk of cardiovascular disease (Mensink et al., 2003), (Micha and Mozaffarian, 2010), (Sun et al., 2015). In conclusion, the study stated that differential tariffs on palm oil could potentially be used as an intervention to promote healthier, sustainable oil consumption, as part of a sectoral agenda for sustainable nutrition.

Moreover, a study on palm oil in Myanmar (Nicholas et al., 2018) elaborated increased domestic access and affordability of palm oil may increase consumption and cause increased prevalence of cardio vascular disease, diabetes, and obesity. On palm oil production and supply, the relevant literature indicated Oil palm (Elaeis guineensis) is a tropical crop which originally comes from the West and Central African coastal belt in the region between Guinea and Angola. Palm oil is produced through different processing steps of the oil palm fruit, which is the main source of oil in the plant. The fruit is composed of a fleshy oily outer layer and mono seed, where both are characterized by high oil content and thus used for oil production (El Enshasy, Hamed, and Boumehira, 2017).

On recent developments, surveys on the world production & trade of the major vegetable oils ranked palm oil and soybean oil as the most widely produced vegetable oils (USDA 2015, cited in Rodriguez-Estrada et al., 2017). They cover more than 50% of the total vegetable oil world production, with 61.4 and 49.04 million metric tons in the year 2014/2015 and a growth of 330% and 148% in 20 years, respectively. Oil palm plantations have expanded especially in Indonesia and Malaysia, while soybean production has extensively spread in both the United States and South America. Rapeseed and sunflower oils represent about 21% of world production, being respectively the third and the fourth most produced oils in the world. Reviews on the world vegetable oil consumption reported that America and Asia are the countries that consume more vegetable oils, as expected according to the country's population and disposable income. China's percentage share of vegetable oil consumption is still growing, in relation with the evolution of the per capita consumption (Mittaine and Mielke 2012, cited in Rodriguez-Estrada et al., 2017). Another study on palm oil showed that Palm Oil (PO) is today the most widely consumed oil in the world with almost one third of

the vegetable oil global market share. The importance of PO is based on its wide potential applications in the food, feed, cosmetic, pharmaceutical, chemical, and biofuel industries, with Malaysia and Indonesia today account for almost 85% of global PO production (Carter et al., 2007, Corley, 2009, von Geibler, 2013, cited in El Enshasy et al., 2017).

2.2.4 Edible Oil Processing Technology

Concerning edible oil processing technology, broadly, the steps in edible oil processing cover: seed extraction, processing and then refining stages. Regarding the extraction Process, oil extraction is the unit operation performed to separate the oil from the solid portion of the seed, with oilseed processing involving the following processes; namely, (1) expeller or screw press extraction, (2) prepress solvent extraction, and (3) solvent extraction, in which Solvent extraction consists of a sequence of four operations: (1) physical removal of oil from the seed in the extractor; (2) desolventizing-toasting of the de-oiled seeds, often combined with drying and cooling of the meal; (3) distillation to remove the solvent from the extracted oil; and (4) recovery of the solvent, for reuse in the extractor(Rodriguez-Estrada et al., 2017). On edible oil refining technology, the study discussed that the oil refining processes or techniques can be classified as chemical and physical refining, which mainly differ in the technology used for FFA removal. The principle difference between the two methods lies in the removal of free fatty acids (FFA) by either chemical addition or by physical removal through distillation, while the other steps are common to both the processes

2.2.5 Edible Oil Fortification

Regarding the issue of fortification, as discussed in Micronutrient Forum (2017), by the WHO and FAO, have identified four main strategies for addressing micronutrient malnutrition: Nutrition education leading to increased diversity and quality of diets, Food fortification, Supplementation and Disease control measures. Deficiencies of micronutrients – and the negative consequence of a diet lacking in essential vitamins and minerals/trace elements – continue to pose significant public health problems in much of the world, and esp. in LMIC populations.

In Ethiopia, despite the significant decrease in stunting rates from 58% to 38% between 2000 and 2016, malnutrition remains a major public health challenge, which translates into huge economic and societal costs. It is estimated that Ethiopia loses over 16% of its gross domestic

product every year due to undernutrition. Ethiopian children consume one of the least diverse diets in sub-Saharan Africa and, according to the World Food Programme (WFP), about 28% of all child mortality in the country is associated with undernutrition. In response to these challenges, in 2016 the Government of Ethiopia signed the Seqota Declaration, an ambitious plan to end child undernutrition by 2030. Food fortification is just one of the nutritional improvement interventions, such as better diets for children and reducing postharvest losses (GAIN, 2020a).

Regarding edible oil fortification, fats and oils are energy dense macronutrients, providing the body with a concentrated source of energy. Edible oils are good solvents for fat soluble vitamins (A, D, E, and K) and are natural sources of these vitamins, at various levels. They are also needed for the delivery and absorption of the fat soluble vitamins in the human body. While all of these oil soluble vitamins are essential for health, they are not readily available in some typical diets. Vitamin A deficiency is a major problem in the developing world, while vitamin D deficiency must be countered in northern climates with limited sunlight (LászlóDiosady and Krishnaswamy, 2018). Specifically, concerning edible oil fortification in Ethiopia, ENHRI (2013) study on dietary modeling using data from the NFCS (National Food Consumption Survey) indicated that the fortification of edible oil alone with vitamin A is recommended to improve nutrient consumption among Ethiopian children and women, while avoiding risk of excesses. Besides, on Vitamin A, FAO/WHO Guidelines on food fortification with micronutrients (2006), elaborated that the choice of a vitamin A fortificant is largely governed by the characteristics of the food vehicle, as well as various technological, regulatory and religious considerations. Since vitamin A is fat-soluble, it is easily added to fat-based or oily foods.

2.2.6 Food Safety and Quality

On food safety, FAO (2019) emphasized that a healthy diet starts with safe food by saying, ‘if it is not safe, it is not food’; Food that is tainted with bacteria, viruses, pesticides or chemical residues, for example, can cause serious illnesses and in the worst cases, can even lead to death. Consumers around the world have a right to expect that the foods they purchase and eat are safe and good quality. An estimated three million people around the world, in developed and developing countries, die every year from food and waterborne disease, with millions more becoming sick.

Food safety and quality management is inseparable from ensuring food and nutritional security, and as such is an important area of concern in the edible oil processing as well. Discussing the importance of food safety and quality management system, Kahindi (2016), by citing the works of Mensah &Julien, 2011 and Duan, Zhao, & Daeschel, 2011, defined food safety as a food that does not harm the consumers at the point of preparation or eating, and in which harmful food is caused by physical, chemical and biological hazards such as bacteria, viruses, parasites, fungi and physical particles (such as, sand and bottle particles). On tailoring FQM-systems [Food Quality Management] to small and medium sized companies, Hagelaar (2015) elaborated that food quality management systems have a tendency to be designed and to develop into a conglomerate of rules, norms and measurements, including training, tasks and responsibilities throughout the organisation and related to a managerial and technological infrastructure. Small and medium sized companies, because of their different organisational conditions compared to big companies, will cope with this task in a different manner. The thesis goal is to deepen the insight in how in the setting of small and medium companies cope with the organisational and technical requirements presumed by a FQM-system.

Thus, food safety measures are significantly important in food processing environments. In this regard, Vandeputte (2018), using direct observations to identify unsafe food handling practices among high-risk produce vendors at Rhode Island farmers' markets, discussed that high-risk, whole produce at farmers' markets present unique challenges to food safety practices in regards to temperature controls, potable water, and exposure to contaminants. In a study on food Safety Management Practices of Small and Medium Sized Food Industry Enterprises in Tanzania, Kahindi (2016) noted that the use of HACCP and ISO 22000 has enabled food establishments to control food safety. Kahindi further discussed that ISO 22000 works under five management criteria, namely: Food safety management system; Management responsibility; Resource management; Planning and realization of safe products; Validation, verification and improvement of the food safety management system (ISO, 2005).

Besides, food safety can only be assured if the safety procedures are implemented at all the stages in the farm to fork food chain. Elaborating this, FAO (2019) stressed that keeping food safe is a complex process that starts on the farm and ends with the consumer; in which it specified six ways to keeping our food safe, namely, working from the beginning with local food producers (like farmers and fishers, to follow good hygiene and other agricultural

practices that minimize food safety risks); setting global standards (by the FAO and WHO joint Codex Alimentarius Commission, which is the quality standard-setting body that ensures global food safety through the international food standards, guidelines and codes of practice that establish how to keep food safe, of good quality and suitable for trade); make sure countries have strong regulatory control; encouraging safe food practices at home; assessing the science behind food safety; and by promoting food safety emergency preparedness and response (by FAO and WHO through INFOSAN – International Food Safety Authorities Network).

On the relationship of food safety and food security, Hettiarachchi, Ranaweera, and Kuruppuarachchi (2020), in their study 'A Model of Food Security Management System for Edible Oil and Oil Based Products used for Cooking Purposes', explained that while food safety and food security are interrelated concepts with a profound impact on the quality of human life, the scope of food security is insufficiently addressed by the food safety standards. They developed an extended framework by considering food safety management standards as one additional pillar in food security, in addition to the four pillars of food security namely; availability, access, utilization, and stability, which is food safety,

On the critical importance of food quality in food security and edible oil processing, Zhou et al. (2020) stressed that edible oil industry is a complicate supplier chain, which is involved in plant planting, seed storage, transportation, production, processing, oil storage, and transportation. These links are interrelated, mutually restrictive, and interlinked. Security problems taking place in any link will affect the EPO quality. Therefore, in order to ensure the safety of edible oil, we must seize every link of the edible oil industry and take proper safety measures to monitor the entire process. A strict and reasonable evaluation system is the key to ensure the quality and safety of EPOs.

Besides, on quality aspect of edible oils, Dunford (2016) elaborated that the majority of the edible oils used for cooking, frying and food formulations are derived from various plant sources, specifically from oilseeds, resulting in differing physical, chemical and nutritional properties of vegetable oils. Physical, chemical and nutritional properties of vegetable oils vary significantly depending on the type of fatty acids present in the oil. FFA are usually removed during the refining process. FFA are not desirable in edible oils because when oils

with high FFA content are used in foods, they lower the oxidative stability of the product, increase acidity and lead to off-flavor formation.

Further elaborating on the complexity of the chemical composition, EPOs contain complex chemical components, and are generally rich in fatty acids, microelements and active compounds, and flavor substances (Kim et al., 2010; Puch et al., 2010; Ascensión et al., 2014; Wang et al., 2019, as cited in Zhou et al., 2020), as well as trace components. These components together constitute the unique physicochemical properties of EPOs. EPOs are also rich in the fat-soluble vitamins A, D, E, and K, among which vitamin E has antioxidant properties and can devour the free radicals that lead to aging and carcinogenesis (Zhou et al., 2020). Besides, Maochong (2014), in his study 'Research on Edible Oil Quality and Safety System' for China', explained that oil fat is an important nutrient for human beings, and edible oil is essential in our daily life. In this respect, how much edible oil people can consume has become an important indicator of living standards in a region and holds a significant place in the national food security.

2.2.7 Health Effects

Edible oil, as food, has high relevance to the safety and health of human beings. Regarding the health effects associated with edible oils, Zhou et al. (2020) noted that there are small quantities of trace elements in the human body that are necessary for human survival and health. And they not only provide heat energy and essential fatty acids for human beings but also endow food with a pleasant flavor, a major factor taken in to account when choosing EPO. Besides, the environmental risks need to be seen across the farm to market chain and not at one stage of the chain, covering oil-bearing plant cultivation, the harvesting and post-harvest process of EPOs, during EPO processing, and during EPO storage stages. Besides, on damages to oilseed crops and their impact on safety and quality of edible oil, for instance, as discussed in McKevith (2005), Oilseeds, along with cereals, nuts, dried fruit, coffee, cocoa, spices, dried peas and beans, are among the major food commodities that can be affected by mycotoxins, toxic chemical substances produced by certain forms of mould under specific conditions. Mycotoxins pose a potential threat to human and animal health through the ingestion of food products prepared from contaminated commodities. The first mycotoxins to be identified were aflatoxins that are produced by a particular type of mould, Aspergillus.

Yet, it is very important to see the implication on micronutrients of edible oil processing. The evolution as well as conservation of micronutrients during oil processing is crucial to maintaining nutritional value of the edible oils and their shelf life as well. Fine et al. (2015) in a study of 'The impact of crushing and refining processes on vitamins and antioxidants in sunflower, rapeseed, and soybean oils' stressed that it is essential to understand the impact of crushing and refining processes on micronutrient content in order to suggest alternative processes and thereby improve the nutritional quality of oils, and that crushing and oil refining processes have been progressively modified in recent years to improve the productivity, stability, and conservation of vegetable oils. They also highlighted that minor in quantity, micronutrients are essential for stability against oxidation, and are useful for their health effects, and hence, there is a need to highlight the oil manufacturing steps that cause the greatest losses of micronutrients (such as the deodorization and neutralization stages in particular as causing major loss of micronutrients), and present alternative methods to improve their extraction. The study further emphasized that while crushing and refining steps affected minor constituent contents, but other upstream steps, such as genetic factors, climatic conditions, and seed storage are also of great importance.

Moreover, on the relationship of fat and health, for instance, a study by McKevith (2005) clarified that fat is an essential nutrient with a number of important functions. It carries fat-soluble vitamins and supplies EFA which are vital for the formation of signalling substances in the body known as eicosanoids. The total amount of fat in the diet and the amount of the different fatty acids in the diet can influence health. It has been suggested that the balance between the intakes of n-6 and n-3 fatty acids is more important than levels of intake of individual fatty acids. Changing dietary patterns have led to a substantial rise in intake of n-6 fatty acids, as vegetable oils have been used to replace traditional sources of fat (e.g. lard and butter) in the food industry. The study further specifically discussed that on fat and heart health, generally, high intakes of saturated fatty acids and trans fatty acids have been associated with raised blood cholesterol levels, one of the risk factors associated with CVD; including some studies noting possible association between fat and cancer and also fat and overweight/obesity, as fat is a concentrated source energy (providing twice as much energy per gram as protein or carbohydrate).

2.2.8 International Food Standards and Requirements

Finally, on international food standards and requirements, there are international food standards that help in the food processing and also trading globally, which countries often adopt in to their national food laws and legislations. On International Food Standards, FAO/WHO (2021a) discussed that Codex Alimentarius is about safe, good food for everyone - everywhere. The CODEX ALIMENTARIUS international food standards, guidelines and codes of practice contribute to the safety, quality and fairness of this international food trade. Consumers can trust the safety and quality of the food products they buy and importers can trust that the food they ordered will be in accordance with their specifications. Codex standards are based on sound science provided by independent international risk assessment bodies or ad-hoc consultations organized by FAO and WHO. While being recommendations for voluntary application by members, Codex standards serve in many cases as a basis for national legislation.

Besides, the General Principles of the Codex Alimentarius are explained in the purpose, scope and nature of Codex standards. The Codex Alimentarius covers various codes of practices for different products, including for the different types of edible fats and oils (FAO/WHO, 2021b).

2.3 Conceptual Framework

Based on the foregoing theoretical and empirical literature and the concepts of food and nutritional security, and the application of the SME business enabling environment, and the value chain framework and approach for the agrifood/ food processing industry chains, the following conceptual framework has been developed. (See Figure 2.1). The different elements of the agrifood chain could offer internal and external challenges and opportunities to edible oil processors - that is challenges and opportunities resulting in negative and positive impacts in domestic SME edible oil production efforts respectively.

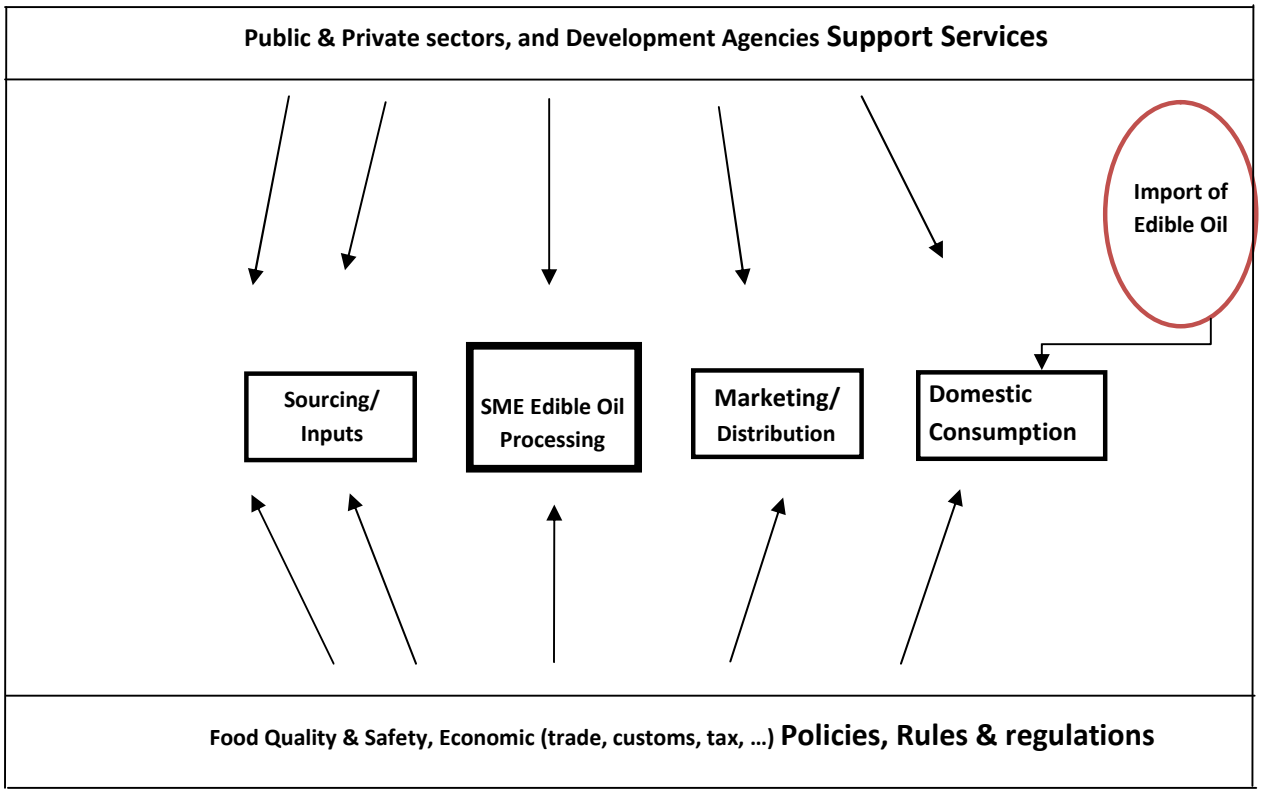

Figure 2.1: Conceptual Framework

*** Core/Primary Activities** cover: Inbound logistics, Operations, Outbound logistics, Marketing & sales, and Service. **+ Support Activities** include: Firm infrastructure, Human resource development, Technology development, and Procurement; and **Laws/Rules/Legal & Regulatory Framework Activities** include: Government Policies, Regulations, & Standards (Collins, Dent, and Bonney, 2015; Van Dijk and Trienekens, 2012; Attaie and Fourcadet, 2003).

Source: developed by the Researcher (2021)

CHAPTER THREE: RESEARCH METHODS & DESCRIPTION OF THE STUDY AREA

3.1 Description of the Study Area

The study area was Addis Ababa, the Capital City of Ethiopia, also called the Addis Ababa City Administration. Addis Ababa has an area of 527 sq. km., with estimated population density of 5,165 people per sq. km., and an estimated population of 5,005,524 in 2021 (World Population Review, 2021). (See Figure 3.1 for map of Addis Ababa and the sub cities within it).

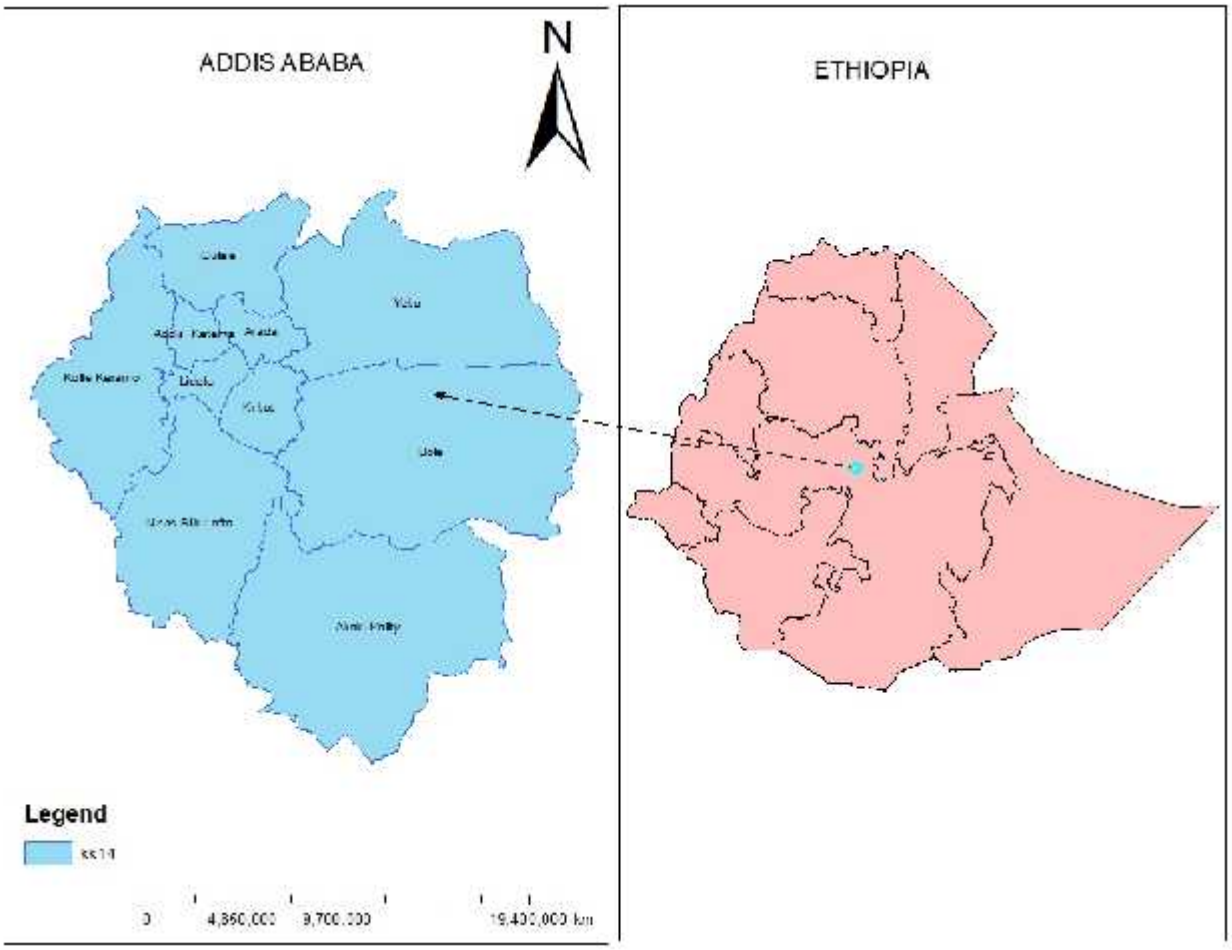

Figure 3.1: Map of the study area (Addis Ababa and Sub Cities within it)
Source: Arc GIS Map (2021)

3.2 Research Approach

Quantitative research involves studies that make use of statistical analyses to obtain their findings. Key features include formal and systematic measurement and the use of statistics, whereas *Qualitative research* involves studies that do not attempt to quantify their results through statistical summary or analysis; qualitative studies also involve interviews and observations without formal measurement (Marczyk et al., 2005; Flick (ed.), 2018).

This study applied quantitative and qualitative (mixed) research approach to collect data of quantitative and qualitative nature from Small and Medium edible oil processors , governmental support and regulatory institutions, and from key informants in the edible oil sector, through questionnaire/structured checklists, and semi structured checklists, using the methods of data collection of interview, depth discussion and observation. Specifically, the research collected data from the small and medium scale edible oil processors and the relevant support and regulatory institutions and other key informants in the edible oil sector, focusing on obtaining enterprises' characteristic features and also capturing their perspectives (views and opinions) regarding the current weakened nature of the processors, and the pressing challenges and any promising opportunities in the SME edible oil processing sub sector. In this regard, the study specifically applied the value chain framework and approach.

3.3 Research Design

This study used descriptive research design. According to Vanderstoep and Johnston (2009), descriptive research describes the attitudes and behaviors observed during the investigation. This approach to research is in many ways the converse of experimental research with respect to advantages and disadvantages. Whereas experimental research exhibits much control over the setting in which the participants' behavior is observed, descriptive research take place in natural, real - life settings. A common descriptive research technique is naturalistic observation, which involves collecting data where people are ordinarily found. Besides, Neuman (2014) elaborated that descriptive research presents a picture of the specific details of a situation, social setting, or relationship. Descriptive and exploratory research blur together in practice. Descriptive researchers use most data-gathering techniques: surveys, field research, content analysis, and historical-comparative research. Moreover, Kothari (2004) further discussed that descriptive research includes surveys and fact-finding enquiries of different kinds. The major purpose of descriptive research is description of the state of

affairs as it exists at present. The main characteristic of this method is that the researcher has no control over the variables; he can only report what has happened or what is happening. Accordingly, the study reviewed the current status of the SME edible oil processors and identified their internal and external challenges as well as opportunities, using the value chains approach.

3.4 Study Period

This study was carried out during April – November 2021.

3.5 Data types and data sources

3.5.1 Data Types

The type o data for this study was both quantitative and qualitative data collected from Small and Medium edible oil processors in Addis Ababa. This research also utilized further primary as well as secondary quantitative & qualitative data sources from relevant governmental regulatory and support institutions and KIs, to enrich and further triangulate the results of the quantitative data analysis.

3.5.2 Data Sources

The sources of the data were the Small and Medium edible oil processors and also relevant Regulatory & Support Institutions, and Key Informants in the edible oil sector, in order to properly understand the dynamics taking place in the edible oil sector of Ethiopia, to fill the information gaps from the collected quantitative & qualitative data, & importantly, to triangulate & also further enrich the data obtained from the Small and Medium edible oil processors.

3.6 Source and Target Population

The target population for this study was 55, which comprised of the small and medium scale edible oil processors, KIs, relevant governmental regulatory and support institutions (at the Federal and A. A. levels), & Advocacy groups/Associations in the SME edible oil sub sector in Addis Ababa. The study applied census method to reach the target population. The detail of the source and target population and methods used is presented in Table 3.1.

Table 3.1: Source & Target Population, 2021

S. No.	Respondent Group	Target Population	Method

1	Small and Medium Edible Oil Processors	15	Census
2	Regulatory and Support Institutions	15	Census
3	Advocacy Groups/Associations	5	Census
4	Key Informants (incl. *Shemachoch*, supermarkets, & retailers, having knowledge about the edible oil sector)	20	Sample
	Total	55	

Source: Addis Ababa Edible Oil Millers Association & edible oil processors, 2021

Regarding the selection of the census method in this study, the following relevant literatures show the justifications for its use. While taking a sample instead of a census can result in a savings of both money and time, Quizlet (2021) elaborated that sometimes it is preferable to conduct a census of the entire population rather than taking a sample for three reasons, namely, to eliminate the possibility that by chance a randomly selected sample may not be representative of the population; for the safety of the consumer; and to benchmark data for future studies; while there could also be the problem that the sampling frame, from which the samples are to be drawn, are often different from the target population. Discussing sampling design, Kothari (2004) emphasized that when the universe is a small one, it is no use resorting to a sample survey. Besides, by using the census survey, the estimates are not subject to sampling error (Australian Bureau of Statistics, 2021). Moreover, in a census survey, everyone has the opportunity to participate, accuracy concerns are reduced and it is easier to administer (Sampling versus Census, 2021).

Following the **very** limited number of SME edible oil processors in the city, learned during the initial stage of the research, their significant weakening, closure or suspension of their activities at the moment, the SME edible oil processors had very low confidence and morale to respond to the structured questionnaires. Besides, they preferred to voice their responses only through their Association or known representative persons. However, the researcher applied extensive efforts and resources to interview as well as make depth discussions and collect the responses of available SME edible oil processors, as well as representatives of relevant Federal and Addis Ababa governmental regulatory and support institutions, Associations, and also KIs.

Thus, this study covered 55 respondents, comprising of: SMEs, KIs, pertinent governmental support and regulatory institutions as well as Advocacy groups/Associations, with a response rate of 92.7%.

3.6.1 Eligibility Criteria

The eligibility criterion used for the selection of the participants in to this study was as follows. It included the SME edible oil processors but excluded the large scale edible oil processors that are very few in number and located widely scattered across the country. The study also included the Federal and A. A. city administration governmental regulatory and support institutions, advocacy groups/associations and KIs with high relevance to the edible oil sector, while excluded those not relevant to the edible oil processing sector.

3.7 Instruments of Data Collection

The instruments of data collection for this study were: Structured questionnaire for Quantitative data and Semi-structured checklists for the qualitative interviews data collection from different relevant regulatory & support institutions, and key informants. The use of such standard questionnaires and checklists helped ensure applying similar approach in data collection in different settings.

3.8 Methods of Data Collection

The methods of data collection fall in to three categories, namely: personal interview, depth-discussion (with key informants), and also document review methods.

3.8.1 Questionnaires/Structured Checklists

The study used structured questionnaire/checklists and semi structured checklists, developed based on the concepts and theoretical frameworks of food and nutritional security (Habiba et al., 2015; Ruel, 2013), food processing, food safety, edible oil quality, and product quality management system (Belur et al., 2017; El Enshasy et al., 2017; Rodriguez-Estrada et al., 2017; Kahindi, 2016; Hagelaar, 2015; McKevith, 2005; FAO/WHO, 2006; Maochong, 2014; Fine et al., 2015; Dunford, 2016; Micronutrient Forum, 2017; Hariyadi, 2020; Zargaraan, 2019; FAO, 2019; GAIN, 2020a; Hettiarachchi, 2020; Zhou et al., 2020; FAO/WHO, 2021a; FAO/WHO, 2021b), SMEs in the food processing farm to market food chains (Christy et al, 2009, as cited in FAO, 2013; FAO, 2014; Kapoor and Sharma, 2016; Kumar & Rajeev, 2016; ILO, 2019; GAIN, 2020b; Bouet et al., 2020), in order to collect relevant information from the small land medium edible oil processing enterprises to respond to the specific research objectives and research questions.

Thus, questionnaire/ structured checklists and semi structured checklists were used for the small and medium edible oil enterprises and the regulatory and support institutions & key

informants respectively. Likert-type scale based questions was also developed & used on a scale of 1 (strongly disagree) to 5 (strongly agree) to properly measure the attitudes regarding the challenges and opportunities in the edible oil processing sub sector. As discussed in Neuman (2014), scale is a class of quantitative data measures often used in survey research that captures the intensity, direction, level, or potency of a variable construct along a continuum; most are at the ordinal level of measurement; whereas a Likert scale is a scale often used in survey research in which people express attitudes or other responses in terms of ordinal-level categories (e.g., agree, disagree) that are ranked along a continuum. Besides, A Likert scale is a type of response alternative in which participants indicate their degree of agreement with a stated attitude or judgment (Vanderstoep and Johnston, 2009).

3.8.2 Semi-structured checklists

This study used semi-structured checklists to collect vital information from the different relevant governmental regulatory and support institutions, and also from key informants with experience in the edible oil processing sub sector.

3.8.3 Document/Desk Review

The study also applied document/desk review method to obtain secondary data on domestic oil crop production, edible oil production, export of oil seeds, import of edible oils quantity and value, and also edible oil standards and related proclamations and regulations and related documents, to be collected from relevant governmental institutions and international organizations, for the last 3-10 years.

3.8.4 Data Quality Management

Data quality management system was applied to ensure the quality of the data collected for the purpose of this study. This included: proper instrumentation of the study, such as design of the questionnaire/ structured and semi structured checklists to respond to the research questions, revising the questionnaires and checklists based on feedback from thesis Advisor, Pilot testing the instruments on some study participants was done to ensure suitability for wider use. After data collection, editing, summarization, presentation and analysis was done on the different quantitative data collected regarding the edible oil sector in general, and the SME edible oil processing sub sector in Addis Ababa in particular, using spreadsheet numerical and graphical analysis. Besides, regarding the qualitative data, data quality was also ensured by making proper note taking, transcription, summarization, coding, and

thematic analysis of relevant qualitative data on a daily basis while the data collection is proceeding.

3.8.5 Validity and Reliability

While validity is about truthfulness, reliability is about consistency [or repeatability] (Vanderstoep and Johnston, 2009). Whereas *reliability* refers to the consistency of the measure, *validity* focuses on what the test or measurement strategy measures and how well it does so (Marczyk et al., 2005; Creswell, 2009). Besides, sound measurement must meet the tests of validity, reliability and practicality, as discussed in Kothari (2004). Thus, the study ensured validity and reliability by using different data types, sources & data collection methods for triangulation and also selection and application of widely used quantitative and qualitative research strategies of inquiry, and methods & procedures. The study conducted testing the instruments to small group of respondents at initial stage of the research, and also applied subject matter expert opinions, based on which the instruments were revised.

3.9 Data Processing and Statistical Analysis

Descriptive analysis was done based on the collected quantitative data, and thematic analysis was done on the qualitative data collected from the pertinent respondent groups. Descriptive statistics was used to summarize & analyze the results, using growth rates, percentage share, using spreadsheet numerical analysis; presentations using tables and graphs; identifying the challenges and opportunities & also by conducting priority listing/rankings of challenges & opportunities, using Likert-type scales.

Qualitative data was analyzed using content analysis, narrative analysis, and framework analysis, the illustrative/pattern matching method of strategies of analysis inquiry, coding and recoding to final thematic issues (Neuman, 2014; Creswell & Creswell, 2018), to ensure proper thematic analysis, and using the qualitative data to further reinforce and triangulate the quantitative data analysis results of the study. (See Table 3.3 on data analysis methods used).

Table 3.3: Data analysis approach

Specific Research Objectives	Research Participants	Data Type	Data Collection Methods	Data Analysis Methods
-identify the opportunities of the SME edible oil processing in Addis Ababa in the lens of the value chain approach and framework	Descriptive Design	Quantitative and Qualitative (Mixed) Methods	Structured Questionnaire/ checklist for SMEs Interview of Institutions Key Informant Interview Desk Review	-Value chain mapping -Descriptive Statistics -(growth rates, percentage distribution numerical analysis; presentations in tables, graphs, …) - priority listing/rankings using, Likert-type scale -qualitative coding & thematic analysis of opportunities
-identify the internal and external challenges of the SME edible oil processing in Addis Ababa in the lens of the value chain approach and framework	Descriptive Design	Quantitative and Qualitative (Mixed) Methods	Structured Questionnaire/ checklist for SMEs Interview of Institutions Key Informant Interview Desk Review	-Value chain mapping -Descriptive Statistics -(growth rates, percentage distribution numerical analysis; presentations in graphs, …) - priority listing/rankings using, Likert-type scale -qualitative coding & thematic analysis of constraints
-review the current policies, regulations and practices affecting the SME edible oil processors in Addis Ababa	Descriptive Design	Quantitative and Qualitative (Mixed) Methods	Structured Questionnaire/ checklist for SMEs Interview of Institutions Desk Review	-Descriptive Statistics -(growth rates, percentage distribution numerical analysis; presentations in tables, graphs, …) -oilseeds/edible oil processing & trade/marketing analysis.

3.10 Ethical Considerations

First, he researcher obtained approval to conduct the research from the Clearance Committee of CDS (College of Development Studies), CFSS (College of Food Security Studies), at AAU, and collected a formal letter to submit or present to the different research participants. The researcher clarified the objective of the study to the different respondents, and also ensured confidentiality by utilizing all information obtained during the study for the purpose of the research only. Moreover, the researcher adhered to ethical practices towards respecting Intellectual Property and avoiding plagiarism in all its different forms. Finally, cognizant of the global COVID-19 emergency situation, the researcher took appropriate social distancing and also used Mask cover at all times when communicating with the different respondents; while the researcher also encouraged the different respondents to do the same.

CHAPTER FOUR: RESULTS AND DISCUSSIONS

4.1 Analysis of the National supply sources of edible oil

4.1.1 Imports

Based on analysis of FAO trade database (FAO, 2020), Ethiopia's import of vegetable oil and fats in 1970 was 1,859 tons valued at 656,000USD. This import has been showing very slow, though erratic, increase over many years, reaching, by 2018, 643,270 tons and a value of 604.1 million USD. However, major turn in sharp increase of import of edible oil started around 1999 and 2000.

Ethiopia has also been a major exporter of oilseed crops to the international market, with sesame seeds and some niger seed becoming significantly export-oriented commodities. For instance, Ethiopia's oilseed crops export was 55,549 tons in 1970, valued at 11.2 million USD. By 2018, Ethiopia's oilseeds export volume and value has reached 264,467 tons and 323.3 million USD respectively; with further analysis showing edible oil import value increasing and getting equal to and even displacing the value of oilseeds export value over time. (See Figure 4.1 on share of oilseeds export value to vegetable oil & fats import value).

Figure 4.1 National Oilseed Export to Edible oil Import value Ratio: 1970-2018

Source: computed based on FAO data (2020)

Further analysis was made on the FAO trade statistical data (FAO, 2020). Accordingly, in 2019 the major share was held by palm oil (93.9% of volume, and 88.5% of value of vegetable oil imports of the country), followed at far end by sunflower oil (with 4.1% of volume, and 7.0% of value), and other vegetable oils, not elsewhere specified /nes/ (with 1.6% of volume, and 3.3% of value share), and also soya bean oil (with no import in 2019, but recorded less than 2% share in pre 2019 annual vegetable oil & fats import data). Besides,

on average, over the period, 2011-18, import of palm oil accounted for 91.1% of total edible oil imported in to the country. Specifically, import volume of edible oil nearly doubled from 258,973 tons to 519,085.7 tons by 2017 (EFBPIDI, 2018). Moreover, on allocation of foreign exchange for imports, more than 85 percent of the total foreign exchange allocated for the import of food items is used for edible oils (EFBPIDI, 2017).

4.1.2 Domestic National Edible Oil Production Aspect

A previous study showed that oilseed crushers produce around 20% of the domestic consumption of edible oil: 80% is imported as palm oil, sunflower, and soybean oil (Wijnands, et al., 2009); while domestic production share of total edible oil supply was estimated at 6% (or 20,000 metric tons) in 2012, and with faster growth rate of palm oil imports reaching 85% share of total edible oil imports on average for the 2005-12 period (Omar-Amir, 2012).

On domestic production of edible oil, the available data showed that total domestic production has largely been very low and stagnant over the years, but showing increasing trend very recently, reaching 28 million liters (or 28, 101.8 tons) by 2017/18, which according to (MoT, 2020), was mainly due to establishment and commencement of production by new large scale operators, namely, Shemu plc, Tena Foods, Selagoja Admas union, Kokeb Kana and other edible oil factories. (See Table 4.1).

Analysis made on national total edible oil supply showed that domestic production in 2017/18 represented 6.3% of total edible oil supply in Ethiopia (See Table 4.1). MoTI (2020) report also reconfirmed that, of the total supply of edible oil for domestic consumption, 95% (with Palm oil import, 84% and non-palm oil imports at 11%) was accounted by imports, while the role of domestic edible oil production is estimated as having a minor share of about 5%.

Table 4.1: National edible oil supply and share of domestic production (%): 2011/12-2021/21

Year	Domestic production in tons	Total Supply	% share of domestic production
2011/12	6,520.4	319,612	2.0

2012/13	4,573.1	364,409	1.3
2013/14	9,596.2	396,169	2.4
2014/15	7,085.2	485,828	1.5
2015/16	8,341.2	511,172	1.6
2016/17	11,631.2	540,586	2.2
2017/18	28,101.8	443,443	6.3
2018/19	56,401.4	626,920	9.0
2019/20	76,951.7	680,413	11.3
2020/21	110,447.8	791,431	14.0

Source: Computed from EFBPIDI data (2018) & MoTI (2021)

Similar to this finding, the information from the newly established Ethiopian Edible Oil Manufacturing Industry Association also indicated that import, currently amounting to more than 400,000 tons per year, accounted for 96% of the national edible oil demand, while the share of domestic edible oil production, is less than 10%. However, recently with increasing support for large scale processing establishments, and esp. for import and refining of crude palm oil, there is increasing trend in domestic production.

4.1.3 Domestic National Edible Oil Supply

As discussed in the related literature reviews section, the drivers of the demand for edible oil include: economic growth, population growth, urbanization, changes in consumers eating habits, such as growth in fast foods consumption, etc …, that cause increased use of edible oil in food preparation processes. Based on MoT (2020), the Ethiopian Nutrition And Health Research Institute have put dietary requirements of oils for adequate nutrition at 0.72 liters per day or 8.64 liters per year. (See Table 4.2 for details).

Table 4.2: Supply and Demand of Edible oil in Ethiopia (2009/10-2020/21)

Year (EFY)	Year (G. C.)	Total Population	P. C. C. of Edible oil Per Year	Edible Oil Demand, in tons Per Year	Edible Oil Supply, in tons per year	Demand-Supply Gap	Supply Coverage (%)	Actual P. C. C. per year, in Liters
2002	2009/10	79,835,354	4	319,341.42	244,252	75,089.42	76.4	3.06

2003	2010/11	81,911,074	4	327,644.30	265,493	62,151.30	81.03	3.24
2004	2011/12	84,040,761	4	336,163.04	319.612	16,551.04	95.08	3.80
2005	2012/13	86,225,821	4	431,129.11	364,409	66,720.11	84.52	4.23
2006	2013/14	88,467,693	5	442,338.47	396,169	46,169.47	89.56	4.48
2007	2014/15	90,767,853	6	544,607.12	485,828	58,779.12	89.21	5.35
2008	2015/16	93,127,817	7.85	731,053.36	511,172	219,881.3	69.92	5.49
2009	2016/17	95,549,140	7.85	750,060.75	540,586	209,474.7	72.07	5.66
2010	2017/18	98,033,410	8.64	847,008.73	443,443	403,565.7	52.3	4.52
2011	2018/19	100,974,41	8.64	872,418.92	626,920	245,498.5	71.8	6.21
2012	2019/20	104,003,64	8.64	898,591.49	680,413	218,178.7	75.7	6.54
2013	2020/21	107,123,75	8.64	955,650.00	791,431	164,218.8	82.8	7.39

P. C. C.: Per Capita Consumption

Source: analyzed by the researcher based on MoT (2020) & MoTI (2021) data

However, due to the major deficit between supply and demand, Ethiopia's actual per capita consumption of edible oil has been lower than the 8.64 liters currently in use by the MoTI and also far below the recommended level of per capita consumption of 18 liters (MoTI, 2021).

The very low consumption of edible oil become more evident when we compare Ethiopia to other countries' per capita consumption of edible oil, such as Egypt, China, Kenya, India and Tanzania each of which had a per capita edible oil consumption of 17.9kg, 17kg, 11.6kg, 11.5kg, 10.8kg respectively, as noted in MoT (2020). As can be observed, the indicated countries' per capita consumption of edible oil is more than twice at the very least, or triple or quadruple for some countries, of the actual per capita edible oil consumption of Ethiopia.

4.1.4 Domestic Oilseed Crops production and Export of oilseeds

The latest available data on private small holders area and production survey for 2020/21 report by CSA (2021) showed that oilseed crops account for only 5.9% of the total area under grain crops, and only 2.27% of the total production volume of grain crops under private peasant holdings.

For instance, based on the recent CSA Annual Agricultural Sample Survey Report (CSA, 2021), comparing 2019/20 to 2020/21, there is also a significant decrease in the area and production volume of Neug, Sunflower and Rapeseed oil crops; and a minor decrease also observed in area and production of sesame seed as well. Significant productivity (yield)

decreases was also observed in Linseed, Sunflower and Rape seed oil crops. Though minor, yield decreases was also observed in *Neug*. Besides, comparing 2019/20 to 2020/21, overall, oilseed crops registered a 6.65% decrease in Area, and a 7.68% decrease in production volume. This reality is more concerning for the edible oil processing sub sector which is in dire need of finding a solution for the pressing oilseed crop raw material critical challenge.

Beside small holders, in the oilseed crops farming, commercial farmers have a major importance, as they cultivate larger acreage of land per commercial farmer/investor. Survey results of commercial farms by CSA (2020) showed that, comparing 2018/19 to 2019/20, there was an overall decrease in area and production by 2.02% and 2.52% respectively, while yield declines were also observed in the major oilseed crops under commercial farms.

Further analysis of oil crop area, production and yield, as well as export volume and share of production going to export is depicted in Table 4.3. Accordingly, 99.4% of sesame seed, 48.08% of sunflower seed, and 11.4% of Niger seed (Neug) are exported. This shows the highly export oriented nature of the oilseed crops produced in the country.

While niger seed is being largely exported, discussions with edible oil processors showed that linseed (*telba*) is largely missing in the market, saying it is being replaced by other crops. average growth rates computed based on collected data on oilseed crops production over the period 2013/14-2017/18 showed increasing trend for some (sesame seed, 4.82%; niger seed, 10.26%; groundnuts, 7.03%; and sunflower, 43.75%), but stagnation (Linseed, 0.19%), or decline in growth (for Rapeseed, -14.24%); while overall oilseed crops production over the period showed an average growth rate of 4.74%.

Table 4.3: Area, Production and Export of Oilseed Crops in Ethiopia: 2017/18

Oilseed Crop Type	Area, in '000 hectare	Area (%)	Production volume, in '000 Quintals	Production (%)	Export volume, in tons	Export (%)	Share of Export to Production (%)
Sesame seed	370.1	43.7	2,559.03	29.9	254,423	85.2	99.4
Niger seed	290.4	34.3	3,233.4	37.8	36,802	12.3	11.4
Linseed	79.04	9.3	882.09	10.3	6.333	0.0	0.01

Groundnuts	80.8	9.5	1,451.7	17.0	0.2	0.0	0.00
Rapeseed	18	2.1	328.6	3.8	2705.4	0.9	8.23
Sunflower	7.9	0.9	95.7	1.1	4601.1	1.5	48.08
Total	846.4		8,550.7	100.0	298,538	100.0	

Source: computed by researcher (from MoT, 2020 working documents)

4.2 The Oilseed – Edible Oil Value Chain in Ethiopia

A value chain framework encompasses the different micro actors (such as input suppliers, oilseed crop growers, traders, edible oil processors, to domestic consumers and exporting stages). Besides, a value chain also includes the different local, regional and federal level regulatory as well as support agencies engaged in farm extension, input supply facilitation, trade financing, transport and logistics, wholesale to retail traders, edible oil processors, quality and standards regulatory bodies, trade, customs and related ministries, authorities and agencies. A specimen oilseed-edible oil value chain framework for Ethiopia, within which the edible oil processors are clearly depicted, is presented in Figure 4.2.

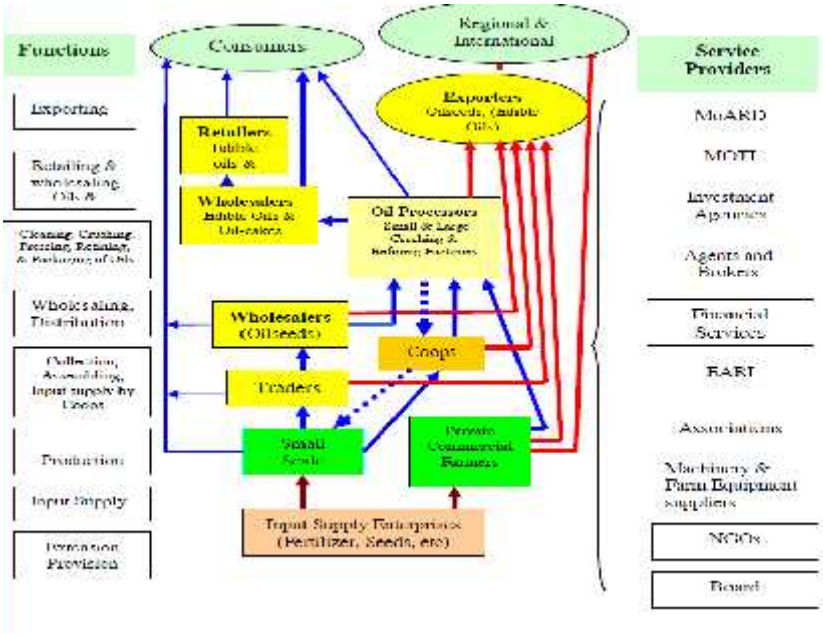

Figure 4.2: Oilseed-Edible Oil Value Chain of Ethiopia
Source: EFBPIDI (2017)

4.3 Addis Ababa Edible Oil Supply, Marketing and Distribution system

4.3.1 Addis Ababa Edible Oil Supply Aspect

Discussion with AATB highlighted that the current edible oil monthly per capita consumption has reached 1.3 liters per month or 15.6 liters per capita per year (which can be compared to the lower national average of 0.72 liters/month or 8.86 per capita per year).

In order to estimate the demand and supply for edible oils in Addis Ababa, the following assumptions were made: (a) share of Addis Ababa in total import of non edible oils at **50**% of total non palm edible oil imports (that accounted for an average of 8.1% of total edible oil imports during 2011/12 - 2018/19); (b) the 2019/20 and 2020/21 non palm edible oil imports estimated based on average growth rate of 2011/12 – 2018/19 period; (c) use of actual palm edible oil distribution in Addis Ababa – at 84% of plan (AATB, 2017); and (d) given the huge demand in Addis Ababa, 30% of domestic production is assumed to flow to Addis Ababa to cater for the huge unmet demand esp. for the majority of the low and middle income population in the city.

Besides, consumption of edible oil and fats is normally considered to be higher in urban areas than in rural areas. For instance, CSA data for 2011 showed that average annual edible consumption per capita in rural areas was 3.6kg, and in urban areas this was 5.8kg; whereas nationally average annual per capita consumption of edible was 4.5 kg (EFBPIDI, 2017). Accordingly, this rural-urban differential was used to estimate the per capita consumption for Addis Ababa for the years preceding 2017/18.

Based on these assumptions, the estimated demand and supply of edible oil for Addis Ababa is presented in Table 4.4.

Regarding imports, available information from MoTI and AATB also indicated that the import volume was affected not only by the increasing demand for edible oil but also by the availability or scarcity of foreign exchange allocations and also problems related to import and shipment arrangements.

Table 4.4: Supply and Demand of Edible oil in Addis Ababa (2009/10-2020/21)

Year (EFY)	Year (G. C.)	Total Population	P. C. C. of Edible oil Per Year	Edible Oil Demand, in tons Per Year	Edible Oil Supply, in tons per year	Demand-Supply Gap	Supply Coverage (%)	Actual P. C. C. per year, in Liters
2002	2009/10	3,061,108	7.2	22,162.42	18,837	3,325.52	85.0	6.15
2003	2010/11	3,194,682	7.2	23,129.50	19,644	3,485.41	84.9	6.15
2004	2011/12	3,334,185	7.2	24,139.50	19,563	4,576.02	81.0	5.87
2005	2012/13	3,479,671	7.2	25,192.81	17,890	7,303.03	71.0	5.14
2006	2013/14	3,631,404	9.1	32,864.21	20,393	12,471.28	62.1	5.62
2007	2014/15	3,789,864	10.9	41,157.92	23,247	17,911.32	56.5	6.13
2008	2015/16	3,955,356	14.2	56,199.68	35,428	20,772.01	63.0	8.96
2009	2016/17	4,127,946	14.2	58,651.92	48,004	10,647.76	81.8	11.63
2010	2017/18	4,307,820	15.6	67,367.40	63,136	4,231.01	93.7	14.66
2011	2018/19	4,495,829	15.6	70,307.56	56,876	13,432.04	80.9	12.65
2012	2019/20	4,692,841	15.6	73,388.52	47,771	25,617.37	65.1	10.18
2013	2020/21	4,899,612	15.6	76,622.08	59,927	16,694.93	78.2	12.23

P. C. C.: Per Capita Consumption

Source: analyzed by the researcher based on MoTI & EFBPIDI data & discussions

Consumers, KIs, and traders in edible oil that were contacted during the study explained the existence of huge demand and supply gap in edible oils in Addis Ababa, including existence of problems in the distribution of the available edible oils.

However, it needs to be stressed that in addition to the current resident population of Addis Ababa city official estimate reaching 5 million, there is huge population coming in and going out of the city from the different regions in the country. This implies that there is huge population on balance that utilizes different goods and services in Addis Ababa during their temporary stay in the city, one of which being edible oils.

Thus, taking this in to account and also the need to increase per capita edible oil consumption to 18 liters or more, the unmet supply gap or deficit is likely to to increase, unless appropriate sustainable supply boosting policies and measures are implemented.

Given the increasing demand for edible oils, the country has been using import of mainly palm refined edible oils as a major means to supply the domestic market. A very recent development has been the effort of the government to import crude palm edible oil as a raw material and do further domestic refining, by new large scale edible oil processing plants. On the other hand, the domestic SME edible oil processing, which has been using domestic oilseed crops as raw material to extract and supply edible oil to Addis Ababa consumers, has largely become weakened, where most SME edible oil processors are closing or suspending their operations, while others are relocating to other regions at the moment.

4.3.2 Addis Ababa edible oil Marketing and Distribution System

Further analysis was made on data collected from the different respondents of the study regarding the edible oil market channel and distribution share in Addis Ababa.

For Addis Ababa city, the regulation that was used to distribute basic goods and services by traders in Addis Ababa city was the subsidized basic consumption goods distribution directive number 02/2005 E. C. or 02/2012 by the AATB. This directive on edible oil distribution in Addis Ababa City discussed the rationale for the quota system for edible oil distribution by stating its reasons as: the demand and supply wider gap, and the necessity to reduce the burden on the lower and middle income majority (as there exist wider gap between administratively set price of edible oil for consumers and black and open market prices, as much as doubl3 or a 100% price increases), while also taking parallel measures to addressing the supply bottlenecks.

The major players in the palm edible oil supply and the quota distribution system in Addis Ababa city were: the household consumer population, public sector employees, and the business community, while the federal and Addis Ababa city administration institutions helped to regulate and support the supply and distribution system.

Besides, the important element of the imported palm edible oil distribution included the creation of market linkage between and among households (initially without coupons, and

later by identifying the target households and by issuing coupons to consumers), retailers, governmental and other institutions, importers, and the application of the quota system.

Discussion with MoTI and AATB experts revealed that palm edible oils in particular distributed to consumers in Addis Ababa mainly through two channels, namely, *shemachoch* cooperative association retail outlets (71.6%) and retail shops (27.0%). See Table 4.5.

Table 4.5: Distribution channels of Palm edible oils in Addis Ababa

S/N	**Palm edible Oil suppliers**	**Share (In %)**
1	Retailers Shops	27.0%
2	*Shemachoch* cooperative association retail outlets	71.6%
3	Importers/distributors (*Ale Bejimla*) supplying government institutions, etc ….	1.4%
	Total	100.0%

Source: computed by researcher based on data and discussion with AATB

On the other hand, regarding overall palm and non palm edible oils distribution in Addis Ababa, the edible oil distribution was mainly conducted through *shemachoch* cooperative association retail outlets (52.2%), followed by retailer shops (46.9%), as presented in Table 4.6.

Table 4.6: Overall distribution channels of Palm & Non-Palm edible oils in Addis Ababa

S/N	Overall edible Oil Distributors*	Share (in %)
1	Retailers Shops	46.9%
2	*Shemachoch* cooperative association retail outlets	52.2%
3	Importers/distributors (*Ale Bejimla*) supplying government institutions, etc ….	0.9%
	Total	100.0%

* Of domestic edible oil production estimated to be supplied to A. A. is assumed to be distributed through private retail shops (80%) and *Shemachoch* retail outlets (20%).

Source: computed by researcher based on data and discussion with AATB

The increasing importance of the private retail shops arised from the fact that they not only served as distribution channel for imported different types of edible oils by importers, but also functioned as a distributor of palm edible oil by receiving their quota from the *shemacoch* retail outlets to supply to the households identified and linked to them.

Accordingly, based on edible oil current structures and channels, and edible oil processors and stakeholders' information, the edible oil value chain mapping for Addis Ababa is developed in Figure 4.3. The *schemachoch* cooperative association retail outlets remain the route through which the government distributes the palm edible oil quota either directly to households or through the private retail shops linked to the households for palm edible oil quota allocations. However, the two dotted arrow lines in the figure show emerging/not regular distribution channels; esp. for the distribution of, mainly, imported sunflower oil to workers through their offices, or available edible oil from large scale processors to households through *schemachoch* retail shops respectively.

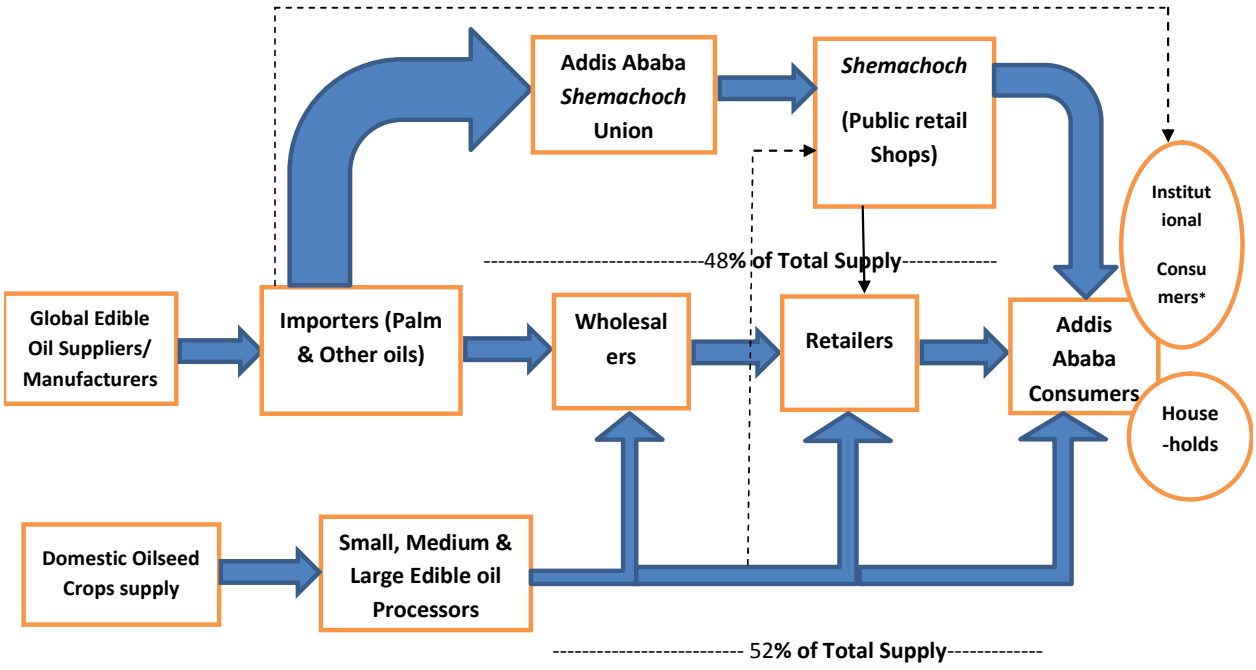

Figure 4.3: Edible Oil Market Distribution Channel for Addis Ababa
* Institutional Consumers category includes: Hotels, Restaurants, Cafes, Academic institutions, military and police camps & training centers, etc.
Source: developed by the Researcher

4.3.3 Marketing Practices: Market Channel and Distribution of Edible Oil in A. A.

Raw material: the market is controlled by brokers and there is extended market channel that is affecting market efficiency and cost of the raw material. The lack of developed edible oil value chain is preventing proper planning, integration of markets and establishment of contractual relationships between oilseed growers and edible oil processors.

Edible oil: Given the limited supply in the market, and the fact that Addis Ababa is a major edible oil consumer market, and also the strategic location of the small and medium edible oil processors in the different villages in the city, edible oil production is sold to consumers directly at own production facilities or nearby or other area branch sales shops; while processors do also sale to retailers. Due to the shortages in edible oil in the city, there has been the experience of nearby area producers from *Adama* and *Burayu* as well as from other towns, as far as Bahir Dar, supplying to Addis Ababa. However, given the existing serious operational challenges facing small and medium edible oil processors, and even larger ones, the sustainability of these market channels and distribution systems in use are being seriously tested at the moment.

Interview of representatives of *Shemachoch* retail shops in Addis Ababa highlighted that they obtain the palm edible oil based on a quota distribution, which actually does not fulfil the required volume for each locality. They further explained that they also buy imported edible oils, depending on their own interest, from private producers. At the time of the interview, the shops were selling sunflower edible oil they buy from a private processor, namely, Tena edible oil processor, to meet demand of consumers in their environs. During the interview it was learned that there are a number of *shemachoch* retail shops opened in Addis Ababa. As an example, Arada, Woreda 06, Kebele 11/12, has 6 branch retail shops in the area, while Yeka, Woreda 04, *Korea Sefer*, has 5 branch retail shops in the area.

Based on responses from Shemachoch retail shop workers, it was learned that right now there is no palm oil in the market, and that they are waiting for their quota from the Addis Ababa Union that distributes the palm oil to the *Shemachoch* retail shops in Addis Ababa based on a quota system. The *Shemachoch* retail shops sales representatives contacted said they do not get adequate amount to sell to the consumers. On consumers preferences, the *Shemachoch* retail shop sales workers said, consumers buy & use both palm and other liquefied imported oils. However, they further elaborated that there are fear of health problems from using palm

oil amongst the consumers and there is tendency to buy their quota of palm oil but sell it to others and buy other liquefied imported edible oils, such as sunflower oils. Besides, *Shemachoch* retail shop workers as well as some consumers contacted indicated that they also try to access any available domestic SME edible oil processors in the villages to buy and use such edible oils. However, access to these has become a major problem recently as most SME edible oil processors has closed their processing facilities at the moment.

Figure 4.4 presents the major oils and fats crops used in edible oil processing globally and the share of saturated, polyunsaturated and monounsaturated fatty acids. It shows that palm is among those with highest share of saturated fatty acids.

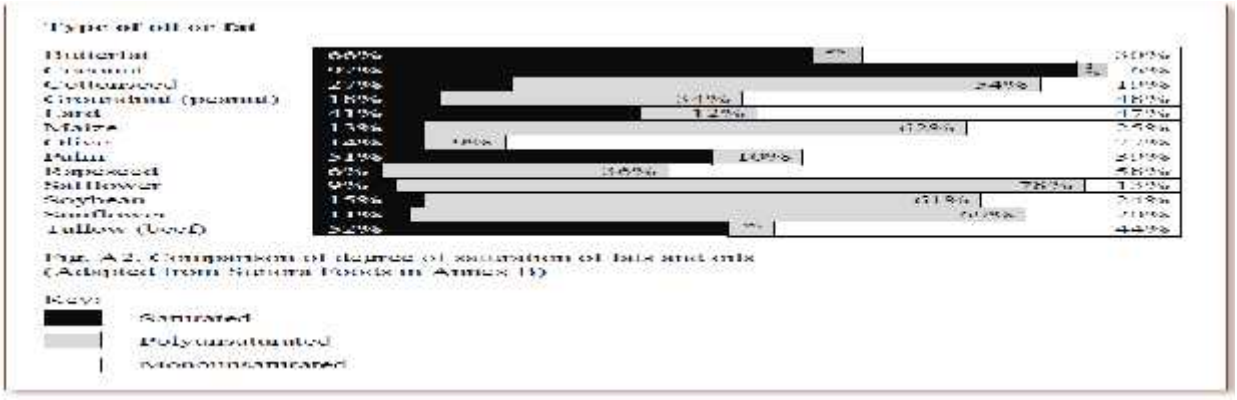

Figure 4.4: Types of oil or fat (Saturated, Polyunsaturated and Monounsaturated)
Source: CTA, 2012

4.3.4 Edible oil prices

Palm oil commands lowest price in the market, though consumers are currently reportedly not getting the palm oil in the market. The government set palm oil retail price in Addis Ababa was 24.50 Birr per liter in 2012/13. As can be observed from Table 4.7, let alone other types of imported and domestic edible oils, palm oil retail prices are even increasing over time. For example, the palm oil price for 3 and 5 liters was 71.24 and 115 birr respectively in 2012/13. However, current price of palm oil in Addis Ababa, in June 2021, has reached 140.30 and 238 Birr respectively. Yet, for the 20 liters palm oil, while the 2012/13 price was 432 Birr, this has now more than doubled reaching 906 Birr (in June 2021), despite the government import duty and domestic tax free privileges as well as domestic price support budgetary subsidy, to make edible oil affordable to the majority of the population in Addis Ababa, and the country as a whole. Yet, in July 2021, the 20 liter palm oil price increased drastically from 906 ETB to 1,377 ETB.

Table 4.7: Previous selling price of Palm Oil: 2012 vs. 2021

Quantity in Liter	Retail price in ETB (at Addis Ababa *Shemachoch* retail shops)			
	2012/13	2020	Jun-21	July 2021
25	525	NA	NA	NA
20	432	NA	906	1,377
10	221.5	NA	NA	NA
5	115	227	238	NA
3	71.25	127	140.3	NA
1	24.5	NA	NA	NA

NA: Not Available in the market.
Source: EFBPIDI (2016), based on MoT data for 2005 E.C./2012/13 G.C.) & Researcher's own current price collection from *Shemachoch* retail shops in A. A.

Besides, the available domestic edible oils and other (non-palm) imported edible oil prices has also reached significantly higher levels, far beyond the capacity of the majority of consumers in Addis Ababa. This is further highlighted from the data collected from different supermarkets and retail shops in A. A. by the researcher in June-August 2021 (See Table 4.8). This showed the significant economic burden and household expenditure budgetary implications of the higher but continued rising prices as well as shortages of affordable edible oils for Addis Ababa consumers.

Table 4.8: Current Retail selling price of domestic & other imported edible oils (June-August 2021)

Domestic Edible Oil prices					
Type	Liter per unit	Country of Origin	Selling place	Value in ETB	Supply source
Groundnuts oil	1	Ethiopia	Merkato/*Mirab* hotel area	68*	*Burayu*/Oromia special zone
" "	1/2	" "	" "	34*	
TENA sunflower oil	3	" "	Shemachoch shops	385	
" "	3	" "	Retail shops	390	
" "	5	" "	Retail shops	600-610	
" "	5	" "	Merkato/*Mirab* hotel area	530	
Richland (soya bean oil)	2	Ethiopia/ Bure Agro-Ind. Park	Merkato/*Mirab* Hotel area	240	Bio-chemicals industry Plc

Imported Edible Oil prices at Supermarkets & Retail shops				
Type	Liter per	Value in ETB	Country	Supply

	unit		Brand	of Origin	source
Sunflower oil	5	748	Crystal	Turkey	Imports
“ “	5	525	Amber	“ “	“ “
“ “	3	449	“ “	“ “	“ “
“ “	3	380	Selam/ Dania	“ “	“ “
“ “	2	299	“ “	“ “	“ “
“ “	5	630	Fresh/For All/Dania	“ “	“ “
“ “	5	895	Girasole	Italy	“ “

* Prices nearly doubled by August 2021 to 120-140 ETB/Liter.

Source: Researcher’s own price collection from retail shops & supermarkets in Addis Ababa

At Merkato, *Mirab* Hotel area, the edible oil retailers said, that this is the only supply they are selling & it is not available regularly; they fear closure of their retail shops soon; no supply coming from SMEs in Addis Ababa. At the time of the visit, they were selling small supply of groundnuts oil they obtained from edible oil processors in *Burayu*/Oromia special zone at a price of 68 ETB for 1 liter and 34 ETB for half a liter in June 2021, with price rising sharply to 120-140 ETB/liter by August 2021. The edible oil is sold from a barrel, with volume sold depending on the liters consumers want to buy. At the *Shemachoch* retail shops, the sales persons said they sometimes buy directly from large edible oil processors (such as *Tena* private large scale edible oil processor) to supply consumers somehow, as the retail shops are currently waiting for their palm edible oil quota and has no edible oil to sell to consumers. Consequently, with rising oilseed crop prices and the huge financial cost, their finance access problems, and their very low capacity utilization has made the small and medium edible oil processors very uncompetitive to the imported edible oil.

4.4 Objective 1: To review the current policies, regulations and practices affecting the SME edible oil processors in Addis Ababa

4.4.1 ‘Basic consumer goods’ classification and rationale

Based on trade competition and consumer protection proclamation number 813/2008, a basic good or service is defined as a good or service where in situation of market supply shortage causes unfair trade practices and a good or service highly related to the to the daily demand or need of the consumer population (AATB, 2017). According to AATB, this covered sugar, wheat grain/flour, and edible oil. Very recently, on September 03, 2021, i. e., the list of basic

consumer goods was expanded to include not only sugar, wheat grain, wheat flour, edible oil, but also macaroni, pasta, and rice.

Towards addressing the increasing demand and rising inflationary tendencies for basic necessity consumer goods in Addis Ababa, the Addis Ababa City Administration established a task force and system of trade arrangements, by designing and implementing the 'Trade Practices Improvement Programme 2004 E. C. (or 2011 G. C.)'.

Basic consumer goods are defined (as per AATB, 2012) as consumption goods such as sugar, edible oil and wheat grain/flour, which are considered eligible for identification, monitoring and supervision by the Ministry of Trade and Industry, as caused by market supply shortage created and also could cause for unfair trade malpractices. This Directive showed the type of eligible stakeholder institutions, their quota, and distribution system and mechanisms, responsibilities and regulatory/accountability measures for non compliance of the Directive.

As a key responsible Federal institution, the MoT issued the 'Basic consumer goods distribution to consumers Directive No. 02/2015 (Revised)'. It was a 'basic consumer goods', namely, sugar, palm edible oil, and wheat (grain/flour) directive for distribution to consumers, in which basic consumer goods are defined as those consumption goods highly related to daily consumption needs of consumers and for which the Ministry carries out monitoring and supervision based on studies.

Further discussion with MoTI and AATB representatives indicated that that the Ministry leads the process through regulations preparation, monitoring and evaluation of the trading systems and practices, and setting of directives at national and regional and city administration levels. Trade practices and regulatory measures was also designed by the Ministry of Trade and Industry, to be implemented by Regions and their respective city administrations. Important in this regard was the basic necessities distribution revised regulation of No. 02/2008 E. C. or 02/2015).

As a key reference document nationally to guide the import and distribution of basic consumption goods to consumers, this Directive of the MoT, No. 02/2015, set out the duties and responsibilities of stakeholders at federal, regional, zonal city and woreda level trade bureaus and offices, public enterprises (sugar corporation, Ethiopian grain trade enterprise), cooperative associations and unions, importers and wholesale traders, retailers and consumer

cooperatives associations, cooperatives agencies, price level and profit margin setting for the different actors; with the profit margin for palm oil being set at 3% for importers/ suppliers on top of cost at Djibouti, and 4% for retailers on the cost of purchase from importers/suppliers.

4.4.2 MoTI's edible oil importers & distributors selection criteria

Besides, to be an importer/supplier of the palm edible oil, the Ministry's Directive No. 2/2015 required that the business be not a wholesaler, as this responsibility is set to be fully carried out by the importer/supplier with the experience, capacity as well as interest/willingness to engage in import of palm edible oil. Specifically, the eligibility requirement of the Ministry specified the need for the business to have a trade license, capacity to engage in the import and distribution activity, already working in edible related business or other major investments in the country, or working as exporter earning foreign exchange for the country, and interested in this import business (MoT, 2015).

As specified in MoTI Directive 02/2008 E. C. (2015), there are specifications criteria for selection of palm oil and other identified basic necessity consumption goods' importers and distributors.

Nationally, in early 2000 there were 10 importers selected by the government (5 private importers, 1 governmental and 4 endowment organizations); however, by late 2000, there were 23 public enterprise and private importers selected for import of palm edible oil (Fortune English Weekly Newspaper, November 23, 2019). Specifically, for Addis Ababa City, five importers were earmarked for distribution of edible oils to the city.

The five palm edible oil importers for Addis Ababa were: Al Sam Plc, Ahfa Plc, Belayneh Kinde Plc, Ale Bejimla (Governmental) and Guna Plc, with their relative importance in the import and distribution presented in Table 4.9.

Table 4.9: Importers and distributors of palm edible oil for Addis Ababa City

S/N	Palm edible Oil Importers	Distribution Quota for Addis Ababa per Month (in Liters)	%
1	Al Sam Plc	2,320,102	29.4
2	Ahfa Plc	1,949,694	24.7

3	Belayneh Kinde Plc	1,085,120	13.8
4	Ale Bejimla Enterprise	2,043,139	25.9
5	Guna Plc	483,990	6.1
	Total	7,882,045	100.0

Source: computed by researcher based on AATB data (AATB, 2017)

4.4.3 Duty free import and quota distribution of palm oil

Following the major shortage in supply of domestic edible oil and rising price of edible oils in the market, the government has implemented the policy of duty free import and government quota distribution of edible oil in the country.

This policy measure has had contributed significantly to availing very low price of imported palm oil in the market, as compared to other high priced edible oils. However, the consistent availability of imported palm edible oil and its regular distribution has been dominated by recurring inconsistencies and shortages, and also recently, rising trends, in the subsidized import of palm oil being distributed to consumers in Addis Ababa.

Further discussion with retailer shops in Addis Ababa highlighted that consumers living in their village that are linked to them for collection of their quota of palm edible oil.

A private retail shop owner said: “My retail shop is linked for palm oil distribution with 43 households living in nearby areas. We distribute 5 liters of palm oil per household on a monthly basis by collecting the quota from the nearby *Shemachoch* consumer cooperative association.” Another retailer elaborated: “my retail shop is linked to 42 households in the neighbourhood areas. “

On distribution of the palm oil to the target low and medium households, the private retail shops contacted indicated though they have been distributing the distribution quota to assigned households largely on a monthly basis, they, however, emphasized that following lack of timely distribution from the *Shemachoch* consumer cooperative associations, they have not been able to distribute palm oil quotas to the assigned households for some months now, causing problems for access of the affordable edible oil by low and medium income households.

The private retail shops contacted further stressed serious lack of transparency in timely distribution of quota both to the retailers and also to the households that are directly linked to the *shemachoch* cooperative association outlets.

This finding was also further reinforced by the significant plan versus actual performance variances (with 84% implementation of distribution plan of AATB) in edible oil quota distribution and the existence of unfair trade practices in the distribution system expressed by the private retail shops, *shemachoch* retail outlets and consumers identified already by the AATB periodic reviews.

On supply adequacy or its trends, the private retail shops contacted highlighted that there is relatively good supply availability for imported sunflower oils supplied from importers and other distributors (from *Merkato*), but emphasized the serious illegal trade and distribution malpractices at the *Shemachoch* consumer cooperative associations outlets both in their direct distribution to target households as well as the private retail shops linked to target households as well.

4.4.4 The current policy of import and refining of crude palm oil

The government has also recently introduced a new policy measure, in addition to duty free import of palm oil, which is the supporting establishment of new large scale edible oil processors and allocating required foreign exchange for import of in crude palm oil for domestic refining.

4.4.5 The recent import duty and VAT exemptions for distribution of imported & domestically produced edible oils and other identified basic consumption goods

Very recently, on September 03, 2021, the government introduced (through official letter from Ministry of Finance) a policy measure of import duty and VAT free import privilege expanded from palm oil to all other types of edible oils, such as sunflower, soya bean, etc …., which has had an import duty rates of about 30%. The policy measure also allowed the Diaspora to use their foreign currency to engage in import of edible oil, to address the supply shortage and also help control the rising price of edible oils in the market.

Further market assessment conducted on retailer shops, supermarkets and *Shemachoch* cooperative associations in Addis Ababa showed that there are clear declines in retail market prices of imported edible oils (mainly sunflower edible oils) recently. For instance, there

were imported edible oil retail price decreases from about 380 ETB to 340 ETB for 3 liters, and from 630 ETB to 545 ETB for 5 liters, while for *Tena* large scale edible oil processor product, from 700 ETB to around 545 ETB for 5 liters. (See Table 4.10).

Table 4.10: Very recent price developments in retail prices of edible oils following government new import duty and VAT exemptions*

Type of edible oil	Brand	Volume	Retail prices previous (in ETB)	Retail prices current (Nov. 2021) in ETB	Price decreases in ETB	Remarks
Imported sunflower oil	For All	3 liters	380	340-360	20-40	
" "	" "	5 liters	630	545-560	70-85	
" "	Omar	" "	700	620	80	
	Sunny	" "	680	598	82	
Domestic *Tena* edible oil		5 liters	700	555	145	
Imported Palm at *shemachoch* retail outlets	Palm	20 liters	1377	1,492	Prices increase	By 100-115
" "		25 liters		1993.73	Prices increase	

* As the import duty and VAT exemption was made early September 2021, the decrease in prices were due mainly to the VAT exemptions, while importers are yet to make import order & shipments of the duty free edible oils. So, further decrease in retail prices of edible oils of all types is highly likely to happen.

A supermarket sales person, selling imported Sunny sunflower oil from Turkey by collecting from importers, discussed that the current price declines are due to the new VAT exemption for imported edible oils by the government, and that they have now made the VAT rate 0% in their cash register system, thus reducing the retail price of the imported edible oils by the amount of the VAT (15%).

In this regard, the retailer shops contacted also further indicated that there are tendencies for increase in prices following rising trend of prices from distributors at *Merkato* where most

retailers collect the edible oils, though some reported buying directly from the importers supplying them at their retail shop sites. A retailer explained that there is about 10-15ETB for a 5 liter imported edible oil lower cost advantage buying direct from importers supplying at his retail shop, while buying at *Merkato* increases the buying price by same amount due to repeated loading and loading, and warehouse and related costs.

4.4.6 Mandatory Fortification of Vitamin A requirement for edible oil

Ethiopian Food and Drug Administration (eFDA) representative elaborated that eFDA requires mandatory fortification of Vitamin A on imports, and voluntary fortification in domestic edible oil processing facilities. There are measures being taken towards mandatory fortification domestically as well.

Besides, MoTI Agro processing Directorate expert discussed that the Ministry is supporting investment and establishment of large scale edible oil processors, about 30 in progress at the moment, further highlighting that on 3 operating plants fortification of Vitamin A has started, and making efforts to continue this fortification activity in other processing plants as well.

4.4.7 New macroeconomic policy under study to allow duty free import of oilseed crops

Following the major shortage in oilseed crop raw material in the domestic market, and the significant export orientation of the available domestic oilseed production, as well as the significant capacity underutilization of the new large scale edible oil processing plants (30% for some months, to as low as below 20% for remaining months), MoTI Agro processing expert elaborated that a policy document is under preparation to allow duty free import of oilseed crops from abroad to at least cover 50% of the plant capacity requirements, so as to help increase plant capacity utilization to about 80%.

The MoTI expert further explained that the lower productivity of oilseed crops locally, and farmers' increased substitution of oilseeds by other crops with better yields.

4.4.8 Current policy measures towards supporting investments in large scale edible oil processing, commercial and contract farming

The Ministry and also AAIDB elaborated the current major policy focus towards supporting investment in large scale edible oil processing. As a result, while few have started operation, others are at different stages of installation in the different regions in the country, including six large scale plants in Addis Ababa.

Studies are also in progress on promoting large scale edible oil processors towards investing in commercial oilseed contract farming.

4.4.9 Regulatory measures to control informal or illegal Operations in Edible oil Processing and Trading

Discussion with processors and support and regulatory institutions indicated that while refining and semi refining helps to extract the edible oil from the seed, due to the use of crude edible oil extracting technology by most SMEs, 3% or more oil remain with the oilcakes. Though detailed information on the **frequency, significance, and identity** of the illegal processors was difficult to access, available information suggested that the illegal/informal activity was carried out by some who accessed the oilcake/the by product from edible oil processing/, though usually such selling is done to animal fattening operators. The researcher has had the opportunity to see a Police TV programme showing application of hot water on oilcakes contained in PP bag and using young labour force to extract the oil from the oilcake. Such malpractices were found out to be motivated by the major shortage of affordable supply of edible oil, the increasing demand for edible oils, rising population, and also the existence of highly food insecure population in the Addis Ababa city as well.

Further discussions on illegal practices in the edible oil with the Addis Ababa Police Commission and also the Federal Police Commission highlighted that there have been documented cases of illegal practices in edible oil processing in and outside Addis Ababa, some of which are also broadcasted on Police TV and Radio programmes, and other digital media. The Police experts contacted discussed that such malpractices in production and trading of substandard edible oil has been causing public health problems; and stressed the need to strengthen regular inspection and surveillance in the market so as to protect the business operation of existing legal edible oil processors, and also to ensure trust and confidence of consumers on domestic edible oil processors' supply.

4.4.10 The VAT tax system

The VAT tax system applied on non palm edible oils, and domestic edible oil processors, has had major implications in the way SME edible oil processors purchase the already high cost oilseed crops, and in impacting affordability of the edible oils they sell to consumers.

4.4.11 The SME edible oil processing regulatory system requirements:

The national edible oil standards give recognition to refined and semi refined edible oil processing, and taking major regulatory measures on the SME edible oil processors in Addis Ababa, thus affecting their production and business operations.

4.4.12 SME development related policies and practices

The 2011 micro and small enterprises development strategy designed in 2011 (MUDC) and the government's overall SME and industrialization strategy has created an enabling environment for mushrooming of new SME businesses in Addis Ababa. The creation of federal, regional and local levels MSME development authority, bureaus and offices has also helped to facilitate this process, including linking the SMEs to nearby micro financing institutions.

However, in sharp contrast to the SME development policies and strategies, the practice in regard to SME edible oil processing sub sector has not had the expected positive outcome. Not only were the focus of the relevant institutions focused mainly towards large scale edible oil new processing facilities, but also such pertinent support institutions, such as the FeSMMIPA (previously FeSMEDA), became mandated to focus on SME development support for those sectors and sub sectors with a potential for export oriented development.

4.5 Objective 02: To identify the current Challenges for the SME edible oil processors in Addis Ababa

4.5.1 Significantly weakened status of the SME edible oil processors in Addis Ababa

4.5.1.1 Current Status

Historically, there had been well developed experience in Ethiopia in domestic edible oil production and distribution to consumers through large number (about 1,500) small edible oil producers/extractors located in different rural and urban villages/localities and handful of large scale processors (about 27) located in different regions in Ethiopia ((FAO/UNIDO/ILO, 2012; Sertse et al., 2011); with relatively recent reports showing total number of establishment to be 297 (EFBPIDI, 2016); with large and medium scale processors to be 56 (EFBPIDI (2018), and new large scale ones under establishment in different regions of the country (EFBPIDI, 2020; MoTI, 2020).

On Addis Ababa, for instance, the Addis Ababa Trade and Industry Bureau official trade database information showed total number as 246. However, the responses from the SME edible oil processors, Association and their representatives, and other KIs in the sub sector stressed that the processors number is very few, and such record show, may be, previously licensed, but not operational enterprises. In fact, a relatively recent relevant office working document of the government showed the list of all edible oil processors, including the larger processors, to be about 38, of which the share of SMEs has been a predominant one (i.e., 32% small, 47% medium) and 21% for larger ones in Addis Ababa (EFBPIDI & GAIN, 2018).

At the initial stage of the research, depth discussions and interview results from the Addis Ababa edible oil millers Association manager and representatives, edible oil processors, KIs, and pertinent Federal and Addis Ababa City Administration governmental regulatory and support stakeholder institutions demonstrated that at the moment, the small and medium edible oil processors are very much weakened and many have closed, some have relocated to other regions outside Addis Ababa, and others changed their line of business of operation, while some even reported becoming employed workers in other organizations (such as, working as drivers in a private firm; other working as driver of *Sheger* public bus, …). Thus, it was found out during the study that a number of the remaining very few small and medium edible oil processors considered to be functional have closed or are in the process of closing their business, and some doing financial auditing for closure. Due to such developments, the remaining edible oil processors were least interested for depth discussion on their edible oil processing business, though some still kindly cooperated to explain their experience on the reasons leadings to such tragic developments. Besides, the Addis Ababa Oil Millers Association has also stopped its functioning, including following up issues of the edible oil processors, and in linking them with different stakeholders.

4.5.1.2 Characteristics of the small and medium edible oil processing enterprises

During the beginning of the research it was found that the small and medium edible oil processors, which were in general operating at below 50% of capacity number in general, were found to be closing or stopping their operations, and finding themselves in a dire situation. The SMEs are mainly operating as private enterprises, with largely active involvement and management by family members in ownership, management, procurement, etc … activities.

The small and medium edible oil processors characteristic features include: low processing capacity, small scale operation, very low capacity utilization, using older (mainly Chinese/Indian) machineries, relatively higher processing capacity of medium processors and few with semi refining facilities, all located scattered in the different villages/woredas, and generally not part of a food safety and quality management certification system, and not getting support, capacity building and guidance on this, though few were trying to package their produce and also trying to improve product quality and do lab testing as well.

On the other hand, in comparison to the small and medium operators, the large scale processors are very few in number and are engaged in full refining of edible oil, having larger processing capacity, but with similarly significantly low capacity utilization of less than 30% (MoT, 2020). Based on information collected from the Addis Ababa Industry Development Bureau, the Bureau provides support and guidance only to large edible oil processors (defined by the Bureau as those edible oil processors with investment capital of 20 million Birr or more), and the current/updated list of large edible oil processors in Addis Ababa is only 6; but most are at establishment or machinery installation or upgrading stages.

With the weakening of the local SME edible oil processors in particular, coupled with the few large scale operators in the country, and in particular, the significantly reduced plant capacity utilization of the processors in the country, imports has increasingly become the predominant source of supply of edible oil for meeting the rising domestic demand

4.5.1.3 Employment Generation and Gender Perspective

Nationally, employment generation by large, medium and small edible oil processors was reported to be about 3,185 while for Addis Ababa this was about 1,059; with 77% male and 23% female; and also 50% of this permanent while the balance being temporary employees, likely to be due to the seasonal nature of oilseed crop production supply (EFBPIDI & GAIN, 2018).

4.5.1.4 Imported to Total Raw Material Cost of Domestic Edible Oil Processing

The edible oil industry in general has a special advantage compared to other domestic industries in that it has the lowest imported to total raw material cost ratio. The annual survey report of CSA (2017) highlighted that medium and large edible oil and fats manufacturing industries had the lowest imported to total raw material cost ratio of 0.066 in 2015/16, which was far lower than of the ratio for the food products and beverages manufacturing industry,

which was 0.334. The other two industries with a closest lowest ratio in Ethiopia were animal feed (0.067) and dairy products (0.098).

4.5.2 Challenges related to Policies, Regulations and Practices pertaining to the SME edible oil processors in Addis Ababa

4.5.2.1 Challenges related to the major palm edible oil import and quota-based distribution in Addis Ababa

Based on depth discussion with pertinent respondents of the study, major implementation challenges facing the distribution and quota system of palm edible oil in Addis Ababa were identified.

One of the major problems observed was the application of average household size rather than actual household sizes for edible oil quota and distribution. The low and medium income households in the city data has also not been updated regularly, affecting proper planning to addressing the widening the demand and supply gap in edible oil in Addis Ababa.

Existence of major gaps in understanding the requirements among the major regulatory institutions was also considered a major challenge to proper implementation of the AATB Directive (No. 02/2005 E. C.).

There were also major challenges of the quota allocation system arising from major lack of fairness in establishing it, including the problem of targeting, such as quota distribution to other traders and businesses, outside the main focus of the distribution and quota system, i.e., the low and middle income consumers in the city.

In particular, the timing of the palm edible oil distribution was found to be not consistent or regularly. In this regard, as reports from AATB (2017) showed distribution timing varying from weekly and monthly up to 2 months or more. However, further discussion with retailers shops (linked for palm oil distribution to 42 & 43 households respectively) said: “We have not been getting palm oil as in the past. As a result, selling of the palm oil to the linked consumers in the village has stopped for more than 6 months, because the *shemachoch* cooperative association outlets are not distributing the palm to them regularly. This situation has also put the target consumer households in major problem in accessing adequate palm edible oil regularly and at affordable price.”

This has major implication for food security, given the specific focus of the palm edible oil supply polices and regulations, i.e., supplying affordable and adequate supply of edible oil the majority of low and medium income households in Addis Ababa. This critical problem has exposed the Addis Ababa consumers to inconsistent/unstable supply and increasing edible oil prices.

Further discussion with AATB also highlighted that there were also other challenges of monitoring and supervision weaknesses, lack of timely delivery and availability of oil for consumers which in turn relates to rent seeking behavours, leadership commitment problems, lack of accountability, lack of fairness, trade malpractices (such as hoarding, lack of interest to adhere to the current market linkage system for the quota distribution), lack of conforming to the directive's requirements by the different actors (such as, consumer cooperative associations, retailers and service traders, producers) in the edible oil distribution chain, and also problems in use of working hours by *shemachoch* retail outlets, and failure to correct identified problems in time.

Moreover, other problems in the edible oil import and distribution included: problems related to foreign currency problems & shipping transport related problems for edible oil importing, rent seeking behaviors and tendencies, and some consumer associations, retailers and service businesses and consumers aggressively demanding the edible oil when there is increase in black market demand, while on the other hand, when demand decreases market linked traders and service providers not interested to collect their quota edible oil for distribution to consumers.

For instance, such challenges were affecting the performance of the planned distribution of palm edible oil in Addis Ababa City, with records (AATB, 2017) showing an implementation rate of plan at 84% on average in the 2012/13-2017/18 period.

4.5.2.2 Trade and Industry Policy and Regulatory Implementation Challenges

The assessment of the SME edible oil processors as well as the relevant Federal level institutions (such as MoTI and FeSMMIPA), and the Addis Ababa City Administration Bureaus (AAIB & AATB) and other stakeholder institutions relevant to edible oil processing (e.g., ECAE, eFDA, …) clearly indicated that there were serious bias against small and medium edible oil processors operating in Addis Ababa in particular and in the country in general.

a) Major focus of Federal and Regional governments towards large scale industries

Following the increasing import of edible oil, the government is taking short term measures to help address the situation. One such measure is the current effort towards increasing domestic production of edible oil. Accordingly, the federal government (MoTI) and also AAIB are supporting the existing few and mainly newly established large scale edible oil processing factories to import and refine crude palm oil. While such measures is considered useful to help increase domestic production of edible oil, it by and large, continues to ignore the small and medium edible oil processing industries in Addis Ababa, which are undergoing a major risk of total closure.

b) The Micro, Small and Medium Enterprises development Strategy (2011) & Micro financing access application biases

The Micro, Small and Medium Enterprises Development Strategy of 2011 has been very instrumental in supporting and capacitating the formation, growth and transformation of micro, small and medium enterprises development in the country. However, this strategy is found mainly focused on new enterprise establishments/formations and on youth employment and job creations, and the small and medium edible oil processors, which has had a relatively longer years of existence, are found not approaching or benefiting from such schemes.

FeSMMIPA's agro processing department representative highlighted that AAIB supports only larger industries (with investment capital of above 20 million Birr); but SMEs in general and SME edible oil processors, fall in their mandate, specifically under food processing. However, the representative discussed that SME edible oil processors are not in their focus at the moment, saying that the new Proclamation of the organization focuses on supporting selected sectors of SMEs to be competitive in exports (export oriented support), and not in SME employment creation per se as it used to be the case. FeSMMIPA representatives said they have done nothing on edible oil sector so far except proving a one-time training on edible oil processing in 2010 E.C (2017/18).

In relation to this, the small and medium edible oil processors and representatives stated that trade and industry bureau/offices, SME development and other regulatory and support interventions are largely aimed at trade per se aspects only and do not do anything to help industrial development aspect, such as how to collect raw materials and process and produce

edible oil and the challenges that processors face in each steps of the chain, and also on how edible oil processors can transition from SMEs to large processors. Most, if not all, processors are remaining as SME or are closing or changing their businesses; yet others are becoming employees of other companies after closure of their edible oil processing facilities.

Besides, SME edible oil processors and their representatives emphasized that the MoTI as well as AATB, AAIB, and other offices, largely have staff with trade professional backgrounds, but not experts with knowledge and experience on food processing or industrial processing or industrial development, as they often focus much on trade regulatory aspects alone; rather than on industrial support and development.

So, it can be said that the small and medium edible oil processing enterprises can be considered as the *missing middle*, getting no appropriate sectoral development technical, financial, skill, and other capacity building support and incentives, but only facing recurrent regulatory requirements and enforcements.

c) Mandatory refining regulatory requirement

Crude edible oil, and semi refined and refined edible oils have been supplied for consumers in the city for a long time. In particular, crude edible oil has been supplied by the SME edible oil processors in the city and its use has been accustomed to consumers' consumption habits. These crude edible oil processors could have utilized the domestic oil seed crop raw material, consumer acceptance and trust opportunities to continue to supply as one reliable and convenient source of edible oil for domestic consumers in their proximity, by implementing and fulfilling food safety quality management requirements.

The SME edible oil processors highlighted that the major challenge came from failing to recognize the importance and use value of crude edible oil and its wider acceptance and use by consumers in the city. As a result, the SME edible oil processors are either closing or suspending their production; while other are changing their businesses to other sectors, such as grain milling and other businesses, including becoming employee in a private companies or public organizations, …, so as to be able to continue to support their families. These developments have been confirmed from the SME edible oil processors contacted as well as from the Association representatives and members.

One edible oil processor reported "I have closed my processing plant and is now working as a driver of a Hilux pick up for a trader in Merkato." Another SME edible oil processing plant

owner explained: “I have closed my factory due to recurring regulatory challenges by government institutions, and I am now working as a *sheger* public bus driver.” Yet, another owner of a processing plant elaborated his observation in the sector by saying: “I have close my facility too, and saw other processors leaving the City and going to outskirts or other regional centers, while other colleagues in the sector, including me, are trying to shift to other businesses to help our families, such as grain milling, or other businesses depending on our capacity.”

In relation to this, one edible oil processing enterprise’s representative said their firm decided to import the refining machineries, due to ECAE’s mandatory refining requirements. She further explained: “we imported machineries but we just put them in our store, as the market situation is very disturbing & highly distorted; and the raw material shortage and price hike could not allow us to continue to operate”.

The Ethiopian Edible Oil Quality Standards covers eight product specific edible oil standards for full refinery and semi refinery system according to Ethiopian standard of Edible Oils (See Table 4.11).

a) Fully Refinery System: Oil from the following seeds should pass through full refinery system, i.e., Degumming, Neutralizing, Washing & Drying, Bleaching and Deodorization. These seeds include: Rapeseed oil, Maize oil, Cottonseed oil, Sesame seed oil & Linseed oil.

b) Semi Refinery system: Oil from the following seeds should pass through semi refinery system i.e. Neutralizing, Washing & drying**.** These seeds include: Niger seed, Groundnut and Sunflower seed oils.

Table 4.11: Major standard for edible oil in Ethiopia

S.N.	Characteristics	Crude	Semi-refined	Refined
1	Acid value, mg KOH/g	6	0.6	0.6
2	Peroxide Value, mill equivalent, max	-	10	10
3	Moisture ,% m/m, Max	-	0.2	0.2
4	Insoluble impurity, % m/m, Max	1	0.05	0.05
5	Soap content, % m/m, Max	-	0.005	0.005
6	Rancidity	-	-ve	-ve

7	Iron mg/kg	5	1.5	1.5
8	Copper mg/kg	0.4	0.1	0.1

Source: EFBPIDI, 2017 (using ESA data)

A workshop proposal document on the edible oil sector by Tadesse (2016), from AASTU elaborates the need for separate standard for cold pressed virgin oil for small scale edible oil millers, as opposed to hot pressed refined oil, and the need for preparing guidelines to control these small scale millers to build confidence of the consumers as well as standard authority. He noted this situation is devastating not only the small millers and also the government who is currently making a budget subsidy of about 1.5 billion Eth. Birr, or 86 million USD.

d) Challenges related to Enforcement of Food Safety and Quality Management Aspect

Given the historically larger number of edible oil processors in the country in general (more than a thousand) and in Addis Ababa in particular (about 250 or more), and their relatively longer period of existence in business (previous years of establishments), existing systems found it difficult to properly regulate the production and operation of the enterprises.

The small and medium edible oil processors contacted and their pertinent association and KIs, stressed that such drastic measures of closure of operators by regulatory bodies has damaged their normal operation over the years, exposing them to operational and business failures.

Discussion with the Ethiopian Food and Drug Administration's (eFDA) Food products Directorate, on the small and medium edible oil processors in Addis Ababa and the regulatory enforcements of the Administration revealed that there are major problems that they found difficult to tackle. These problems include: the fact that the edible oil processors are established in the past, by and large, are not new ones, so they do not fall in the normal duty of their Office. The Administration does issue the necessary permission for new food processing facilities, for them to start their production operation. However, for preexisting (previously established) edible oil processing facilities, they normally take measures when some problems are reported and they take action by closing them all in a reported area. However, the Administration's representative elaborated that such enforcement need to consider supporting the capacity building efforts for small and medium edible oil processors. Recognizing this, the Ethiopian Food and Drug Administration is designing to operationalize a new project office to address such backlogs of previously established and operating

enterprises through a 5 year project; and the Administration representative said that they hope to address the problem this way better.

4.5.2.3 Failing to tap the potential role of edible oil as a vehicle for Fortification

Fortification is the addition of needed vitamins to enhance vital vitamins content thereby improving food nutritional quality, and to address the widespread risks of health from different vitamin deficiencies of the population, esp. at risk children and mothers. The ENHRI (2013) study clearly recommended use of edible oils for fortification of Vitamin A. Besides, Ethiopian standard for Edible Vegetable fats and Oils (ES 6133:2018) specifies also fortification with Vitamin A and Vitamin D (EFBPIDI & GAIN, 2018).

While this clearly shows the critical role edible oil processing can play towards addressing Vitamin A deficiency, the very weakened situation of the operation of the SME as well as large scale edible oil processors, and in particular the lack of transition to modernization and large scale operations or lack of use of appropriate small scale technology promotions in edible oil processing at the SME levels, could not help utilize their potential for vitamin A fortification.

Besides, there is significant lack of proper promotion, awareness creation and technical training supports in edible oil fortification among owners and production staff of edible oil processors. On this, a report, EFBPIDI & GAIN (2018), showed nationally 90% of all processors do not have knowledge about fortification, with the significant majority being SME edible oil processors. Refining edible oil also enables undertaking vitamin fortification, using either batch or continuous mixing processes.

4.5.2.4 Tax System on Edible Oil

The small and medium edible oil processors strongly emphasized the taxation system as one of the top five critical challenges they face, namely, raw material (supply, quality and price), market competition from imports, including significant export orientation of oilseed crops produced, regulatory pressures, lack of SME edible oil processing dedicated capacity building, support and incentive schemes, and the VAT tax system. The SME edible oil processors explained the problems related to the tax system from two perspectives.

First, while VAT (15%) has been applied on domestic edible oil selling, no VAT is applied to imported palm oil, which accounts for a significant amount (>90%) of total domestic edible

oil supply. The edible oil processors stressed that this situation caused a major blow to the domestic operators by creating an unfair competition in the market,

The second serious problem affecting the small and medium edible oil processors has also been the difficulty they often face in proper implementation of the VAT tax system when they procure the oilseed crop for processing and during the edible oil selling. Often, oilseed crop suppliers say they do not have receipts to give, they want to sell to them without issuing legal receipts, but this is unacceptable to the Tax Offices. So, due to this they cannot buy oilseed crops on time to do edible oil processing. If VAT receipt is required by the processors, then oil crop sellers would request for a further higher oilseed crop selling price. They further noted that the Tax Office understood the challenge in the market, and later allowed processors to buy the crop without receipt but collect 30% as tax to submit to the tax office. However, the oil crop sellers/traders shy away from any edible oil processor who collects the 30% from them, but only sell to those who offer to buy without any receipts or tax collection.

During edible oil selling: VAT registered businesses are required to collect 15% VAT from the buyer, resulting in further inflated price to the already un-competitively higher edible oil market price for consumers and other buyers. The edible oil processors emphasized this is critical issue for a food processor and should have been addressed properly but failing to do this has become one major factor forcing them close their facilities. One SME edible oil processor explained his case saying: he is now closing his enterprise and that he has decided not to return to operate in the edible oil processing sector, saying the government institutions simply try to implement trade, tax and other regulatory aspects without providing appropriate support to the small and medium edible oil processors to grow and develop as an industry.

4.5.2.5 Informality/Illegal supply and Contraband & Illicit Trade in edible oil

Given the limited supply of edible oil domestically, there are some illegal or informal activities in supplying substandard edible oil that has become a public health threat. Federal and Addis Ababa police TV programmes periodically show news of such illegal and unhygienic and non-traceable activities, where the illegal operators, after collecting the oil cake, press it again, using manual labour, applying boiled water, etc …, and sell in informal markets. On this issue, the researcher contacted the Federal and Addis Ababa Police Commission's Statistics and also public relations departments. Though they could not provide such crime data by specific product type, such as edible oil, due to the nature they

organize their statistics, they noted airing television programmes on illegal operators caught doing malpractices, following the shortage of edible oil in the market, thus affecting public health and safety

Besides, information obtained from the national Edible oil manufacturing industry Association and EFBPIDI also showed existence of contraband and illicit trade affecting the domestic edible oil industry business environment in general.

4.5.3 Raw Material (Oilseed Crops) Supply Access Challenges

Raw material is a critical element in food processing industries. Raw material, mainly oilseeds crops access, challenge was found to be a critical problem reported by the small and edible oil processors contacted. They stressed that it is something far beyond their capacity to address or handle properly, as processors and owners of edible oil facilities.

Ethiopia is a major producer, and origin, for some of the oilseed crops at the global level. In fact, Ethiopia has the comparative advantage in the production of oil crops and as such has also been a globally known exporter of oilseed crops, such as sesame seed and *niger* seed. In fact, the production of oilseed crops has been the major factor for the establishment and functioning of small and medium edible oil processors in the different parts of the country in general, and Addis Ababa city in particular.

The responses from the SME edible oil processors, KI as well as stakeholder institutions in Addis Ababa and at the Federal levels, clarified that the raw material problems are mainly of three types.

a) Raw Material market supply inadequacy

First, the edible oil supply is available for a shorter period of time immediately after harvest, and accessing it after a while becomes impossible. Second, the oilseed crops in the country are mainly exported, such as sesame seeds, niger seeds, etc. That is there is huge competition from exports, as traders collect/buy oilseed crops to export and obtain foreign exchange, which is very scarce in the country. For instance, the analysis of oilseed crops production and also export from Ethiopia (already analyzed in Table 4.1) showed that 99.4% of sesame seeds production, 48.08% of sunflower seed, and 11.4% of Niger seed, and 8.2% of rapeseed were exported in 2017/18 (EFBPIDI, 2018). Third, there is also competition from large food

processing industries that have relatively better financial and business capacities to buy and stock the oilseed crops.

Fourth, some oilseed crops growing areas are abandoning oilseed crops production and replacing it with other crops, due to lack of incentives and support in the oilseed-edible oil sector. For instance, oilseed crop farmers in a known growing area for Niger seed, e.g., Fogera, in North Ethiopia, have recently turned their farms towards production of a newly introduced crop, rice. From *Niger* seed crop they were getting as low as 4 quintals or so per hectare, but from rice, they are getting about 25 quintals per hectare. The farmers also argued from the food security perspective, saying, they can also use rice to cook and serve as food for their children and family members.

Fifth, the Ethiopian Commodity Exchange (ECX) new trading system, which started since 2009, requires collection of oilseed crops to the ECX regional warehouse for grading and also trading only through the ECX trading floor. Not only is the oilseeds mainly exported, accessing and using the trading system to buy oilseed crops is a challenge for the highly weakened small and medium edible oil processing enterprises.

In particular, the lack of adequate supply of oilseed crops, by significantly curtailing production, has contributed to increasing cost of production and uncompetitiveness for edible oil processors.

b) Raw material Quality limitations

The available oilseed crops supply in the market was reported to have serious quality limitations, such as significant foreign matter/ impurities added in to the oilseed crops, caused by the traditional harvesting, thrashing and storage and transport system in agricultural marketing in rural Ethiopia; and also due to deliberate illegal practices by some traders in the farm to market chain of oilseed crops. Such large volume of impurities are often a major factor causing increased loss as impurities has to be removed at the initial stage of seed cleaning, before edible oil extraction. Such losses sharply increase the cost of production for edible oil processors, and ultimately, become a major factor for rising edible oil selling prices to consumers.

On the critical importance of the quality of raw material for the SME edible oil processors, rather than the large scale operators, Tadesse (2016) from AASTU discussed that quality of

raw material is more serious for the millers than the processors as they don't have further process step/unit operation to improve the oil once it went wrong at raw material level; and he also indicated the need to develop guideline on raw material quality and handling.

The main contaminants found in oil-bearing crops are: Foreign material (soil, weed seeds, stalks, stones, string, leaves, metal or glass etc.); Infestation by dead or living insects, excreta, hair from rodents or feathers from birds; Mould growth/aflatoxin production; Chemical residues (e.g. insecticides, fertilisers); and Oil or grease from vehicles or machinery (CTA, 2012).

c) Raw material cost (rising purchase prices)

Following depth discussions with the SME edible oil processors, key informants and stakeholder institutions, it is found out that in addition to the critical problems of oilseed crop supply and quality issues, the oilseed crops market prices have also been rising over time. This results from the major competition to buy available supply in the market for oilseed crops for export as well as domestic large scale edible oil processors, and other food processing and household uses. The oilseed prices are generally 5,000 & above ETB/quintal, with oilcake selling prices 2,200-2,300 ETB/quintal.

4.5.4 Significant Production Capacity Under-utilization

Based on edible oil production capacity, small, medium and large scale processors are classified into up to 500, 500-5,000 and 5,000 or more liters/day capacity respectively (EFBPIDI & GAIN, 2018).

A critical challenge of the SME edible oil processing industries in Addis Ababa has been the significant capacity underutilization. Edible oil processors contacted discussed that their capacity utilization status has been significantly declining and has now reached the stage complete closure or suspension of operation of the edible oil processors facilities. This is a dire development to the already lower capacity utilization norm in the domestic edible oil industry. For instance, (FAO/UNIDO/ILO, 2012) highlighted that in general, the oil extraction capacities of existing large and medium industrial processors are heavily underutilized, mostly operating at only 30-40 percent of full capacity. For small scale processors the situation is usually worse.

In a similar manner, discussions with the SME edible oil processors, KIs, experts, as well as working documents of MoT (2020) and the national edible oil manufacturing industry

Association (EEOMIA, 2020) indicated that nationally the medium and large scale edible processors capacity utilization has generally been below 30%. The SMEs indicated that this is related to the older processing technology in use and the raw material challenge. A study further reinforced that an average for all small, medium and large enterprises' capacity utilization nationally as 38%, in which a little over 50% of the small and medium processors operated at 26-50% of capacity, while 27% of small and 16% of medium operated at 11-25% of their capacity respectively; while the remaining little percentage share operating at very low or higher capacity utilization levels (EFBPIDI & GAIN, 2018).

This posed as a significant challenge for the edible oil processing facilities, as failing to significantly use the installed plant capacity has had serious impact on profitability, business income and growth.

During visits done to the Merkato edible oil retailing center (*Mirab Hotel area) a*s part of this research (June 8, 2021), edible oil retailers explained that right now there is no other edible oil supply for them to sell except groundnut oil, which is being supplied from the edible oil processors located in Oromia Special Zone in Burayu. The retailers said this is supplied even intermittently and not sufficiently and they fear they may have to close their retail shops too. Besides, they also stressed that there is no supply coming to them from Addis Ababa edible oil processors at the moment. The retailers were selling groundnuts oil at a price of 68 birr per liter and 34 birr per half liter in June 2021, with prices doubling by August 2021. The edible oil retailers were selling the edible oil from a barrel by drilling from the pipe-mounted on it, and using as a measurement, half a liter and one liter empty bottles they have.

4.5.5 Low productivity, lack of investment & dedicated oilseed crops agricultural extension services

There was also widely made comments from the SME edible oil processors and KIs that the lack of proper attention, support and incentives towards the application of modern agricultural technologies, including better yield seeds, oilseed agricultural extension support, etc …, have reduced the interest for oil crop production by farmers; resulting in farmers' shifting to other crops cultivation. The relatively low share of oilseed crops in total area cultivated and production, as well as stagnation in growth of area and production for some oilseed crops, such has rapeseed, could help explain these negative developments.

4.5.6 Edible Oil Processing Technology and Processing challenges

The edible oil processing technology in use in most small and medium edible oil processors are generally older ones, of India/China origin, & recurring maintenance and rising spare part costs, which affected production capacity, efficiency and quality consistency. In fact, a relevant report further indicated most, 97% of edible processors were using mechanical press method, while the remaining ones using semi refining or both (EFBPIDI & GAIN, 2018).

The edible oil processing includes crude oil processing, semi refining and refining stages. The SME edible oil processors were mainly engaged in crude edible oil extraction from oil seeds. In fact, experts at the AAIDB said they are providing support and advice only to large scale edible oil processors in Addis Ababa, which currently are 6 in number, and are at different stages of factor construction and machinery installations. They said they only handle large edible oil processes, which they defined as industries with a capital investment of 20 million Birr or more. Figure 4.5 depicts crude edible oil extraction stage activities from oilseed crop procurement to crude oil extraction.

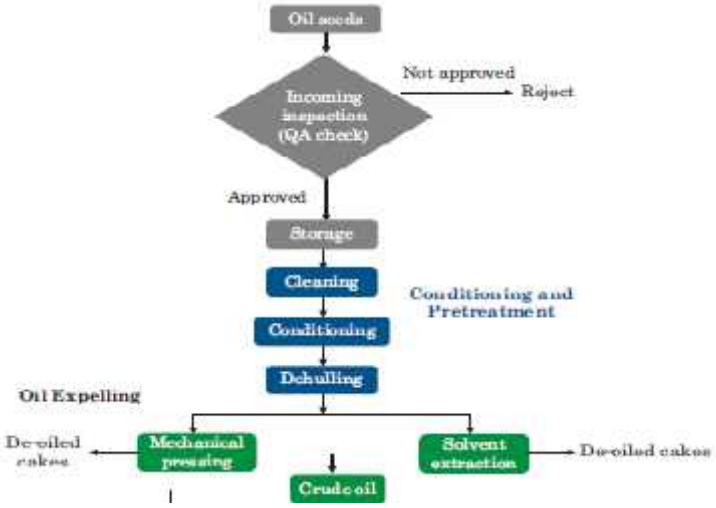

Figure 4.5: Crude Edible oil extraction stages
Source: EFBPIDI & GAIN, 2018

In small and medium edible oil processing the resulting by product, oil cakes often will have some percent of edible oil left in it due to the pressing technology in use by the processors.

As depicted in Figure 4.6, the extracted edible oil further undergoes processing stage called refining, in order to ensure high quality of the edible oil and also to further remove undesirable compounds in the edible oil. Edible oil processing also takes batch or continuous

processing methods, with both being common in the sub sector (34% continuous method, and 63% batch method) (EFBPIDI & GAIN, 2018).

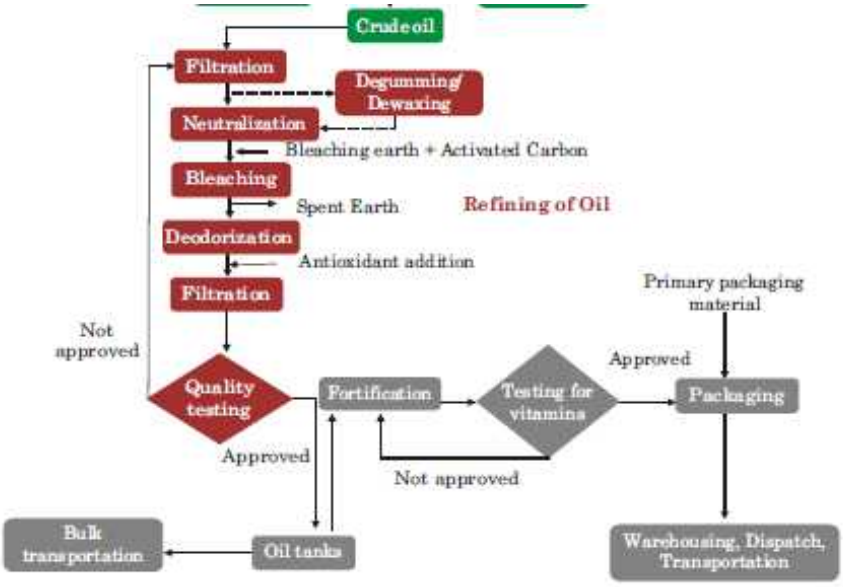

Figure 4.6: Semi refining and refining stages of edible oil processing (including fortification)
Source: EFBPIDI & GAIN, 2018

4.5.7 Packaging

Packaging of the produced edible oil, how it is stored, transported, distributed and retailed is crucial in ensuring the safety of this very sensitive product to light, heat and other exposures in the surrounding areas, and also to enhance shelf life of the edible oil. SME edible oil processors were selling their production in bulk, and retailed in market places by drilling from pipe fitted on the barrel. Some edible oil processors were attempting to use plastic Pet bottles for packaging and selling their product. There were also edible oil processors in other major urban centers in the country, such as Adama and Bahir Dar, following a UN-supported project's technical support and training, trying to package, label, and sell their product, which appears to be helping to differentiate themselves in the market, as far as the Addis Ababa market, and boost their consumer confidence and trust as well, due to informal operations by some illegal ones damaging the market and consumer trust in the local market.

4.5.8 Food Safety and Quality Management System

Application of food safety and quality management system is crucial for ensuring safety of the food, to prevent contamination as well as ensure edible oil, as a food, nourishes our body system, while boosting consumers' trust and confidence on the food product.

Application of food safety and quality management systems, such as GMP, HACCP, SPS and other systems, however, requires knowledge, technology as well as facilities (such as own laboratories and relevant personnel). For the small and medium edible oil processors, such capacity for application of food safety management and certifications is largely a challenge. For example, through assistance from UN-supported project, edible oil processors in Adama and Bahir Dar started improving their existing production system and branded and prepared packaged edible oil in PET plastic bottles, and has had the opportunity to be linked to the national Quality institution /ECAE/ laboratory, to know more about edible oil quality and to periodically get their products tested.

While the eFDA works on regulatory and control aspects, esp. for new and larger scale processors, ECAE operates as a public service provider for inspection, laboratory and certification services. In this respect, discussion made with ECAE, Certifications Directorate revealed that ECAE provides Laboratory, Inspection and Certification Services, as also further outlined in their communication publication (ECAE, 2020). The certification expert elaborated that food processing as well as other industries are their clients for certification services the enterprise provides based on a fee system. Their certification system serves for three years, with annual service and audit fees for inspection, and also sample taking and testing at the ECAE laboratory. ECAE certification expert said their service allows business companies to use the ECAE 'Quality Mark' logo on to their labelling and enhance their customer trust and market profile. The businesses also benefit from technical advice on production processes and also from management system certification, if they want to. On this, the expert clarified that there are two type of certifications by ECAE: Product Certification (which is Mandatory), and Management System Certification (which is Voluntary), but the latter is also helpful to improve overall food processing or any other businesses' organizational efficiency and competitiveness. As highlighted in ECAE (2020), ECAE is accredited for providing Product Certification (ISO/IEC 17065) for food and other products; and Management Systems (ISO/IEC 17021) for Quality Management System (ISO 9001: 2015), and is accredited by DAAKS with 13 scope/sectors. The ECAE certification expert explained that for their client industries, they conduct all testing here at their own laboratory while for some such as metals they still send abroad, till they get full accreditation on this.

Asked on whether edible oil processing enterprise are their clients or not, the ECAE expert responded: nationally about 30-40 edible oil processors are getting their service. This shows

the very limited number of enterprises with food quality management system and laboratory in Addis Ababa and nationally. In relation to this, EFBPIDI & GAIN (2018) report further reinforces this by highlighting that nationally, 15 large scale and only 4 medium edible oil processors were following Good Manufacturing Practices' principles and protocols; and no such or related system applications for the small edible oil processors. While on access to own laboratory, the report indicated 15 large scale, and only 7 medium edible oil processors as having own laboratory, nationally; with no laboratory system for small edible oil processors.

Besides, the national Edible Oil Manufacturing Industry Association working documents also indicated most small edible oil processors do not undergo basic quality processes because of lack of awareness or having no capacity to adhere to hygienic standards. This challenge is further aggravated due to lack of technical and capacity building supports and interventions focusing on SME edible oil processors, by the concerned government entities.

Thus, as is being done by the federal and regional governments in other SME sectors, there is urgent need for technical support on production technology, edible oil processing, food safety and quality management system related appropriate technology, financing, technical training, capacity building and advisory support services for SME edible oil processors, because first and foremost, as stated in FAO (2019) '*if food is not safe, it is not food'*.

In fact, the following findings from edible oil related studies conducted in Addis Ababa and Gondar cities, in Ethiopia, further highlighted that not only domestic edible oil supply, but also imported ones have serious issues in terms of food safety and quality. Thus, mere regulatory measures alone, without building required industrial food processing capacities, cannot be the answer to the major challenges facing the SME edible oil processing industry in particular, and the domestic edible oil industry in general.

A study entitled 'Microbial safety and quality of edible oil examined at Ethiopian public health institute, Addis Ababa, Ethiopia: a retrospective study: 2010-15' by Gobena et al. (2018) concludes that some isolated microorganism indicate unhygienic condition of the edible oil somewhere in its way from processing to packaging and market display. The average microbial load is not higher than 105cfu/ml for Aerobic mesophillic bacteria and 104cfu/ml for moulds. These concentrations may be able to cause health problems in

individuals who consume without enough heat processing and also some of the food spoilage organisms, especially the moulds, can hasten the deterioration the edible oil.

In relation to this, Habte et al. (2020), in their study on 'Safety and nutritional quality of commonly consumed commercial edible oils in Addis Ababa: October to December, 2015', concludes that imported palm oils contain surplus amount of saturated fatty acid; and according to the consumption, it is usually surpass the WHO daily recommendation amount. Consequently, to avoid the long term health effect, substituting liquid oils in place of solid is recommended for their many health benefits. Locally produced edible oils contain good Poly unsaturated fatty acids, omega fats, vitamin A and vitamin E; however they need to pass through all the necessary refinery processes such as degumming, deacidification, bleaching, filtration and deodorization steps.

Based on assessment of the quality of both imported and locally made edible vegetable oils accessed in Gondar City, Northwest Ethiopia, using a cross-sectional study design, Negash et al. (2019) elaborates that edible vegetable oils are prone to quality deterioration through oxidation and microbial degradation resulting in nutritional loss and off-flavors. Quality deterioration may contribute in the formation of oxidation products that are reactive and toxic, which ultimately pose health risks including cancer and inflammation. Besides, the study showed that all rancidity quality parameters of the locally made oil samples were not within the joint WHO/FAO standards whilst the imported oils showed greater fatty acid saturation.

In relation this, the contacted SME edible oil processors and KIs indicated their belief in the safety of the edible oil they have been processing and selling to consumers, while consumers contacted at the *shemachoch* retail shops in A. A., including the sales women working at the *Shemachoch* retail shops, responded that they have interest to buy and the customary consumption practice in the use of the domestic edible oils, if the SME processors can produce and avail it in the market.

4.5.9 Impacting the Animal Fattening sub sector

In addition to household and institutional edible oil consumers, the limited domestic production of edible oil has also reflected its negative impact on the livestock sector (esp. animal fattening) due to lack of the major by-product of edible oil processing, i.e., oil cakes or oil meal, which is normally sold by edible oil processors as animal feed.

4.5.10 Governance Aspect

- **Sectoral Association**

a) Addis Ababa Oil Millers Association

The Addis Ababa Oil Millers Association, which has been representing the Addis Ababa edible oil processors, has also become weakened and suspending its office activities at the moment.

b) Ethiopian Edible Oil Manufacturing Industry Association

Currently, a new national Association, namely, Ethiopian Edible Oil Manufacturing Industry Association (EEOMIA) was established (Nehassie 27, 2012 E. C., or September 02, 2020). Based on the information obtained from the Association, currently, the Association has more than 60 members from all over the country, and covers all small, medium and large edible oil processors. It is further indicated that the national Association has a well-organized office with a General Manager, Advisor, Finance Manager and Office Manager. As a new Association, edible oil processors are yet to become active member and benefit from the advocacy, technical and other supports of the Association.

- **Lack of Integration between the different edible oil value chain actors**

a) Weakened Small and medium and Large edible oil processors

There was some experience esp. in cotton seed crude oil production by small and medium processors and selling the crude cotton seed oil to Mojo edible oil refinery for full refining & based on contract. Such linkages can take place if there is sufficient production of crude edible oil. The lack of raw material and production of crude oil negatively affects such potential linkages.

Besides, following the difficulties in production and marketing of crude edible oil from regulatory bodies, small and medium processors did start, based on a UN agencies-assisted technical support, to establish collective refinery to enable them sell the refined and packaged edible oil, by fulfilling the refined edible oil requirements. Though some activities are going on in the project areas of Adama and Bahir Dar, the critical lack of raw material (oilseed crops) and the significant capacity underutilization by the processors, is also negatively affecting such market linkages and integrations, and the possible replication of such schemes in other regions, including Addis Ababa City Administration.

b) Major weaknesses in Value Chain Actors Linkage

For instance, on raw materials procurement (farmers and processors linkage), there was highly weaken and spot market relationship at time of harvest, very damaging to sustainable business growth and development, and for win-win business relationships, and for sustainable edible oil value chain development.

4.5.11 Lack of Access to investible Finance and also working capital

Following the SME development strategy, a number of SME benefit from production shade, sales display areas, exhibitions support, access to micro finance lending, access to machinery lease, technical training and support, and awarding/recognition for better business performance. However, based on the research study's assessment, the small and medium operators face serious marginalizations, and hence, forced to try to handle all their challenges on their own, single handed. With rising oilseed crop prices and supply inadequacies, the lack of trade finance further contributes to aggravating the very low capacity utilization in the subsector.

4.5.12 Infrastructure challenges

Power interruptions and surges related limitations affecting production as well as water supply, and inadequate work premise related problems were also noted in the sub sector, affecting their business operations.

4.5.13 Publicly available Statistical Information related Problems

There were also problems observed regarding the SME edible oil processing sub sector related statistical data.

a) Classification into small, medium and large enterprises

The classification and definitions regarding SMEs were not only differing among different organizations, such as based on capital or asset and number of employees, …; but it was also changing repeatedly.

For instance, there has also been difference in the definitions between what is termed as small and medium and large between, MUDC's micro and small enterprises development strategy of 2011 and that of CSA, which makes distinction based on manual or power driven and number of employees. Besides, a new classification obtained from AAIDB further shows that micro, small, medium, and large scale industries are classified based on capital and number

of employees, as follows: micro (0-100,000 Birr and employee number of less or equal to 6); small (100,001-1.5 million Birr) and employee number of 6-30; medium (1,500,001-20 million Birr, and employee number of 30-100; and large scale (above 20 million Birr and employee number of above 100).

The available data on food processing, including edible oil processing, is also faced with a problem of lumping up of different categories, esp. preventing possible time series analysis for small, medium and large scale enterprises separately or for conducting comparative analysis. A case in point is CSA's survey of medium and large manufacturing industries annual report, which takes medium and large as one group and does the data presentation accordingly The other major problem observed during the research period was the nature of the edible oil processors database maintained by the Addis Ababa Trade Bureau, which was found out to be not regularly updated, and also included businesses from other sectors as well as repetitive names of businesses.

b) On Registration and Database of SME edible oil processors

A major challenge observed during the initial stage of the study was the serious lack of regularly updated database of active/operational SME edible oil processors in Addis Ababa. The database available was similar to the list used during previous periods when the SME edible oil processors were functioning relatively in better capacity; and this was found out to be not acceptable to the edible oil millers association and representatives as well as the edible oil processors.

4.6 OBJECTIVE 03: To identify the Opportunities for the SME edible oil processors in Addis Ababa

Identified major opportunities for the SME edible oil processing sub sector in Addis Ababa included: increasing population; huge & increasing unmet domestic consumer demand for edible oils; economic growth; high potential for export of crude as well as refined sesame and other oils in the future; well-developed experience in the country in SME edible oil processing and marketing; Ethiopia as a major grower, and origin, of some of the oilseed crops; Ethiopia has the agro ecological condition for expanding investments in oilseed crops production; Government policy and support for agro industry development and export promotion supports and incentives; Government investment, remittance of funds, investment

guarantee and protection, taxation, and related incentives and supports; and Government industrial development strategies & national development plans, that included supporting expansion and Development of micro and small enterprises, and development of medium and large industries.

4.7 Challenges and Opportunities Summary Matrix

Table 4.12 shows summary of the major changes and opportunities as reported by the SME edible oil processors & KIs, and the governmental regulatory and support institutions. Any variations in responses of SMEs and Government agencies (Gov't) are indicated separately.

Table 4.12: Summary of Challenges and Opportunities
(5 points Likert-type scale responses: From 5: strongly agree --- to 1 strongly disagree)

Challenges	Mean Score	Opportunities	Mean Score
Raw material supply inadequacy, quality & rising price problem	5	Well-developed experience in SME local edible oil production	5
Significant export-orientation of oilseed crops	5	Huge & increasing unmet domestic consumer demand for edible oils	5
		Growing economy	5
Unfair market competition from imported palm oil	5	Ethiopia as a major grower, and origin, of some of the oilseed crops,	5
VAT tax system & its implication in oilseed procurement & edible oil sales as well	5	Resource Endowments: Ethiopia has the agro ecological condition for expanding investments in oilseed crops production,	5
Significantly limited capacity utilization	5	Government policy and support for agro industry development and export promotion supports and incentives,	5
SME edible oil regulatory challenges	5	Government investment, remittance of funds, investment guarantee & protection, taxation, and related incentives & supports,	5
Lack of SME edible oil dedicated Supports & Incentives	5	Government industrial and SME development Plans and strategies	5
Edible oil technology, processing, food safety & quality management is weak	Gov't =4 SMEs =2	Huge opportunity for oilseeds exports; and potential for export of crude/refined sesame and other oils in the future	Gov't =5 SMEs =1
Undeveloped or uncoordinated marketing system	5	Investment support and incentives for SMEs to engage in edible oil production	1
Illegal/informal practices production & trade, including illegal imports in edible oil	4	Dedicated SME edible oil processing enterprises development support, capacity building & incentives	1

Infrastructural challenges (power, water…)	4
Access to finance, business development support, and trade & market information	4
Government investment support and incentives towards Oilseed crops area, yield & production expansions is weak	Gov't =2 SMEs =5
Government investment support and incentives towards SME edible oil processing growth is weak	5
A. A. oil millers association is weaker now/closing	5
Partnerships, Collaborations & Linkages between & among edible oil Value chain actors as well as Support & Regulatory institutions is weak	5

As presented in Table 4.12, the critical nature of most of the challenges calls for major oilseed-edible oil value chain interventions to address them properly.

These findings of the study also largely conform to (supported by) previous related studies conducted on challenges and opportunities of SMEs, edible oil & food processing industries, among others, in Ethiopia (Yehuala, 2019; Gizaw et al. 2019; Demeke, 2016; CSA, 2020 & 2017; AATB, 2017); in Africa in general (Bouët, 2020); in India (Sakina, 2019; Gautam et al., 2019; Palanivelu and Apdhulkathar, 2016; Kapoor and Sharma, 2016; Singha et al., 2012); in Nigeria (Uzoejinwa et al., 2016), & also in Iran (Zargaraan et al., 2019).

CHAPTER FIVE: CONCULSIONS AND RECOMMENDATIONS

5.1 Conclusions

The study concludes that in sharp contrast to their historical role of serving as a convenient edible oil supply source at village levels, the SME edible oil processing enterprises in A. A. are in a dire situation at the moment with most closed, others suspending activities or changing their line of business. The SME edible oil processors have been facing critical challenges of: edible oil sector related policy, regulations and practices biases and implementation challenges towards imports and large scale processors, raw material production, yield and supply shortage, quality and its rising prices; highly distorted market system for the SME edible oil processors, and the VAT tax system application problems during oilseed crop material procurement and also during selling of the processed edible oil; and importantly, the increasing marginalization ('the missing middle") of the SME edible oil processing sub sector from vital technical, financial access, training and other support, advice and capacity building services to enhance the application of appropriate food technology, processing methods, sanitation, hygiene, and food safety and quality management systems, etc … (that are quite common in other SME sectors' development programmes); government regulatory challenges, significant export orientation of oilseed crops; very limited capacity utilization, & weak value chain actors' linkage & partnerships.

The major opportunities identified pertaining to the SME edible oil processing sector included: increasing population; the huge & increasing unmet domestic consumer demand for edible oils; economic growth; well-developed experience in the country in SME edible oil processing, marketing & consumption; Ethiopia as a major grower, and origin, of some of the oilseed crops; Ethiopia's conducive agro ecological condition for expanding investments in oilseed crops production, and overall government policy and commitment for investment promotion, expansion and protection in industrial, agro processing and SME development in general.

5.2 Recommendations & Strategies for Action

The study also made important recommendations, including the associated strategies and implementing institutions, for action for SMEs to play their due role in reducing the huge supply deficit in edible oil in the country.

On the policies, regulations and practices affecting the edible oil sector, given the very limited domestic edible oil production, the study recommends that for the major palm edible oil import and quota-based distribution system in use in Addis Ababa, there is the need to ensure policy measures towards import and large scale domestic processing do not marginalize the existing SME edible oil processors to grow and transform.

From the food security perspective, it is also important to ensure that target palm edible oil consumers benefit from the government- mandated major import duty and VAT exempted palm oil supplies by:- regularly updating the low and medium income household statistics and also ensuring their proper targeting and identification (such as use of coupons/ID), including through use of actual rather than average household size to plan distributions. There is critical need to strengthen *shemachoch* cooperative association retail outlets service delivery, transparency and enhance their customer friendly approaches, while also carry out regularly monitoring and inspection in the market to effectively address mal-distribution, lack of fairness, and inefficiencies in the overall imported palm edible oil distribution system that are exposing edible oil consumers in Addis Ababa to lack of availability and accessibility in edible oil, against the intention of the policies and measures for palm oil import and distribution.

Accordingly, at the raw material (oilseed crops) stage, the study recommends increasing the very low share of oilseed crops in total area and production of grain crops, and also address the critically very low capacity utilization, by incentivizing oilseed crop farming through extensification & intensification in small holder and commercial farming; while also ensuring SME edible oil industrial development by implementing capacity building support and incentives and improving the BEE for SMEs on FSQM systems, extraction technology and processing methods, packaging, infrastructure (electric power, water, …), finance, marketing, other BDS services & setting convenient processing site for the SMEs, beyond regulatory services. Concerning the tax system, the study recommends addressing the VAT tax application problems during oilseed crop procurement & edible oil marketing, by exempting & addressing gaps in the tax system applications. (Though recently, on September 03, 2021, the government, through the Ministry of Finance, issued official letter, exempting imported edible oils from import duties, and all types of domestic and imported edible oils from VAT tax until further notice).

In addition to addressing the domestic major edible oil supply shortage through imports and distribution, including the current effort of the government for import and refining of crude palm oil through the promotion of large scale processing industries, the study argues for promotion, technical capacity building, support and incentives for SMEs, to build their technology, processing capacity and food safety and quality, so as to play their due share in import substitution. The study also argues for government provision of appropriate support and incentives expansion of domestic oilseed crop commercial farming in the country, to ensure long term reliable domestic raw material supply base for edible oil processing sector.

At the Marketing stage of oilseed crops, the study recommends addressing the lengthy chain & quality problems, by implementing a marketing system of oilseeds based on quality (and esp. oil content); linking edible oil processors with growers or farmer associations/unions for sustainable food value chain development; while for edible oil marketing stage, leveling the playing field both imported & domestic edible oils; improving inspection, Lab testing & certification, packaging & labelling, traceability & development of edible oil processing & marketing centers to address consumer health related potential threats, & by applying differential tariff on highly saturated fats for healthier and sustainable nutrition. Besides, SMEs need to be supported to conveniently access available oilseed crops supply through the Ethiopian Commodity Exchange (ECX) system and/or by linking them producer cooperatives.

On the legal and regulatory system for edible oils, the study recommends addressing legal, standards and enforcement problems related to crude edible oils production and marketing, by studying & developing crude edible oil/virgin oil (& also blending) standards for the SME sub sector, and the associated appropriate technology & processing methods, work space, OSH, EIA requirements and advisory and technical support services; while also help tapping the immense potential of edible oil for fortification of Vitamin A, D or other fat soluble Vitamins by linking the SMEs to large processors, and/or through clustering of the SMEs for collective refining facilities. Besides, the study also recommends facilitating edible oil value chain development, by clustering SMEs for common refinery facilities, linking them with large scale processors; establishing an edible oil value chain platform, & by strengthening the institutional capacity of edible oil processors associations.

On statistical data, the study recommends availing disaggregating data by small, medium & large scale, & also timely updating of list of function/non-functioning edible oil processors becomes crucial to enable better use of data in research and to inform policy making.

For better implementation of the proposed recommendations and strategies for capacity building & for improving the BEE for the SMEs, the study recommends the leadership role better be taken up by: Ministry of Revenue, Customs Commission, National Bank of Ethiopia, EFBPIDI, FeSMMIPA, eFDA, ESA, ECAE, AATB, AAIDB, Addis Ababa Revenue Bureau, SME edible oil processors & their Associations, universities, and relevant other agencies.

Hence, there is a need to implement these recommendations and strategies in to action to increase edible oil availability at national and Addis Ababa level so as to ensure accessibility at the household level, and attain adequate food utilization in edible oils at the individual level.

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APPENDICES

Appendix 1: Consent Form

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የሀገር ልማት ጥናት ኮሌጅ
የምግብ ዋስትና ጥናት ማዕከል

ADDIS ABABA UNIVERSITY
College of Development Studies
Center for Food Security Studies

Date: 21 December, 2020

Ref. No: CFSS/CoDS/498/13

To:_____

Dear sir /Madam;

_____( ) is a graduate student in the college of Development studies, Addis Ababa University. He/She is currently undertaking his/her Master's thesis research entitled " _____
_____".

This is, therefore, to kindly request your good office to provide him/her with the necessary information and allow the student to your documentary sauces pertaining to the research topic.

With kind regards,

Bechaye Tesfaye

A/Chair, center for Food Security studies

College of Development Studies

Addis Ababa University

Tel: +251-111-544183 Cellphone: +251-911-183497

Appendix 2: Questionnaire/Structured Checklists for Small and Medium edible oil processors

Dear Esteemed Respondents,

My name is Masresha Yimer. I am a student at the Addis Ababa University, Department of Food Security and Development Studies, under the College of Development Studies. As a partial requirement for my Masters study in Food Security and Development Studies, I am conducting my thesis research under the topic "Assessment of the Current Status, Challenges and Opportunities for Small and Medium Scale Edible Oil Processors in Addis Ababa".

This questionnaire is prepared to collect relevant data for my thesis research. The information to be obtained from your response is very crucial for the preparation and completion of the thesis research; to better understand and properly recognize the pressing challenges and promising opportunities in the small and medium scale edible oil producer enterprises in Addis Ababa; and the findings from this study to contribute to development policy advocacy for improving the role and contribution of the domestic edible oil processing sub sector to increasing the quantity and quality of domestic edible oil production and supply.

I, therefore, I kindly request your genuine response to all the questions indicated in the questionnaire. On my part, all the information provided from different selected enterprises for the purpose of this thesis research will be held fully confidential and will only be used for the purpose of this academic thesis research, and as an element of showing the general picture of the sub sector in the specific sub city/cities collectively. That is, all enterprises contacted will be given a unique coded number and the name of the enterprises will not be used during in any of the analysis or report preparation process.

I appreciate very much your willingness, and the time and effort you devote for this thesis research. I thank you in advance for your kind cooperation!

Thank you!

Best regards,
Masresha Yimer,
0911-641307, masreshayimer@yahoo.com

I. General

1. Address Detail: Region A. A. Sub City Woreda locality name _____

II. Production, Marketing, Regulatory Requirement And Governnce Aspects

1. Raw Material
    a. Supply
    b. Quality
    c. Price
2. Production
    a. Edible oil production types

3. Production technology in use

4. Nutrition/Food Fortification aspects
    a. Experience on this?
    b. Training on this?
5. Food Safety and Quality Management System
    a. FSQM system in use, if any?
    b. Training on this?

6. Infrastructural Challenges
    a. Electric power
    b. Water,
    c. Others …
7. Access to Finance Issues
    a. Investment/working capital challenges?
    b. Experience on accessing finance from banks, others?
8. Manpower
    a. Staff number, training,
    b. Access to OSH facilities ….
9. Marketing
    a. Sales of edible oil product
    b. How conduct selling
    c. Trust/relationship with customers?

10. Regulatory Requirements
    a. Product regulation aspects
    b. Sales regulation aspects
    c. Tax system
    d. Informal/illegal operators issues

e. SME support, capacity building, incentives for edible oil sub sector, you are getting, if any? ___
f. Regulatory bottlenecks you are facing in your operations? ____

11. Governance Aspects
    a. Membership to association, if any? ___
    b. Edible oil value chain linkage, partnerships and collaborations, if any? ____

III. Assessment Of Challenges And Opportunities

(Likert-type scale: From 5: strongly agree to 1: strongly disagree)

Challenges	Likert scale	Opportunities	Likert scale
Raw material supply inadequacy, quality & rising price problem		Well-developed experience in SME local edible oil production	
Significant export-orientation of oilseed crops		Huge & increasing unmet domestic consumer demand for edible oils	
		Growing economy	
Unfair market competition from imported palm oil		Ethiopia as a major grower, and origin, of some of the oilseed crops,	
VAT tax system & its implication in oilseed procurement & edible oil sales as well		Resource Endowments: Ethiopia has the agro ecological condition for expanding investments in oilseed crops production,	
Significantly limited capacity utilization		Government policy and support for agro industry development and export promotion supports and incentives,	
SME edible oil regulatory challenges		Government investment, remittance of funds, investment guarantee and protection, taxation, and related incentives and supports,	
Lack of SME edible oil dedicated Supports & Incentives		Government industrial and SME development Plans and strategies	

Edible oil technology, processing, food safety & quality management is weak		Huge potential for export of crude as well as refined sesame and other oils in the future	
Undeveloped or uncoordinated marketing system		Investment support and incentives for SMEs to engage in edible oil production	
Illegal/informal practices production & trade, including illegal imports in edible oil		Dedicated SME edible oil processing enterprises development support, capacity building & incentives	
Infrastructural challenges (power, water…)			
Access to finance, business development support, and trade & market information			
Government investment support and incentives towards Oilseed crops area, yield & production expansions is weak			
Government investment support and incentives towards SME edible oil processing growth is weak			
A. A. oil millers association is weaker now			
Partnerships, Collaborations & Linkages between & among edible oil Value chain actors as well as Support & Regulatory institutions is weak			

Appendix 3: Semi-Structured Checklist for Support and Regulatory Institutions

I am Masresha Yimer, a student conducting a research on the edible oil processing sector. Can I proceed? Thank you.

1. **Raw Material (Oil Seed Crops)**
    i. Agricultural sector development plans and strategies
    ii. What are the major challenges at the Raw material stages
2. **Edible Oil Processing:**
    - What are the edible oil processing technology, processing, edible oil products quality and safety issues in the sub sector

    _____.
3. **Regulatory and support services**
    - Production licensing, inspections, Renewal, and other production process regulatory requirements practices and challenges
    - Production stage, technology, processing, packaging, …, FSQM aspect practices and challenges,
    - Trading/ marketing stage practices and challenges,
    - Infrastructure, water supply, the marketing system, other regulatory policies and regulations practices and challenges
    - SME level edible oil capacity limitations in business skills, financial literacy, and entrepreneurship skill, etc ,,,?
    - Access to finance challenges and on tailoring financing to the edible oil sector,
    - Informality in the edible oil sector and relevant information on this?
    - Domestic Tax and customs export/import tax System related issues:

      _____

      _____

      ____.

Thank you!

Appendix 4: Semi-Structured Checklist for Key Informants in the edible oil sector

I am Masresha Yimer, a student conducting a research on the edible oil processing sector. Can I proceed? Thank you.

1. Raw Material (Oil Seed Crops)

i. What are the major challenges at the raw material stage, both in terms of availability and quality aspects?

_____

2. Edible Oil Processing:

- What are the major challenges at the edible oil extraction/processing stage?
- Problems in oilcake supply for animal feed sector, its illegal uses, ….
- *Edible oil physical, chemical and Free Fatty Acid composition of domestic edible oils processed by small and medium scale processors in Ethiopia,*

_____

3. Marketing of Edible Oil

- Extended marketing chain, brokers roles,
- Role of ECX for edible oil processing, now and in future,

4. Regulatory and support services; Policies & Strategies

- In raw material procurement?
- On Production licensing, food safety and product quality systems, **Consumer** safety, and inspections, and other production process regulatory requirements?
- Oilcake supply and disposal and its regulatory frameworks …
- On Trade & Business Licensing and registration requirements?
- On business skill and literacy, and entrepreneurial mentality?
- Access to finance challenges and on tailoring financing to the edible oil sector,
- Processing & packaging technology use & access/including machinery/ capital equipment leasing tailoring & support to the edible oil sector?
- Investment land lease & access/allocations for edible oil processing & marketing?
- Informality in the edible oil sector & its effect on the formal edible oil enterprises?
- On the taxation system, and annual income tax and tax related issues,
- On import/export trade, tariff and related issues.

_____
_____. Thank you!