

# **Agricultural Value Analysis of Qoka Irrigation Based Onion and Tomato Production With Respect to Forward Integration**

*A Thesis Submitted to the School of Graduate Studies of Jimma University in Partial Fulfillment of the Requirements for the Award of the Degree of Master of Business Administration (MBA)*

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## DECLARATION

I declare that the research Report entitled “Agricultural Value Analysis of Qoka Irrigation Based Onion and Tomato Production With respect To Forward integration \_” submitted to Research and Postgraduate Studies’ Office of Business and Economics College is original and it has not been submitted previously in part or full to any university.

\_\_\_\_\_  
Date: \_\_\_\_\_

## **CERTIFICATE**

We certify that the Research Report entitled “Agricultural Value Analysis of Qoqa Irrigation Based Onion and Tomato Production With respect To Forward integration” was done by Mr.Tsegaye Tedla Wedajo, for the partial fulfilment of Master’s Degree under our Supervision.

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## **Acronyms and Abbreviations**

DBO	Development bank of Ethiopia
EIAR	Ethiopian Institute of Agricultural Research
HC	House holed consumer
HHUR	House hole, University and restaurant
MARC	Melkasa Agricultural Research Centre
MoNRRD	Ministry of natural resources and rural development
VCoOT	Value chain of Onion and Tomato

## ABSTRACT

*The main objective of this research is to investigate the agricultural value analysis of Qoka irrigation based onion and tomato production with respect to forward integration identify the major problems being encountered by the main actors and recommend policy matters. The research has focused on small scale producers and the chain forward in distribution of both products to central market, Addis Ababa. The research used both qualitative and quantitative data collected through structured questionnaires and interviews of Key informants and focus group discussions. In this research quantitative data such as production and productivity of the crops, the cost production, marketing costs and marketing margin and value addition of the main actors were collected and analysed. The opinions of primary actors, key informants (KI) and focus group discussants (FGD) on the major problems being encountered by the major actors (the primary producers, the brokers, the wholesalers, the retailers and the consumers) were collected and analysed using likert scale, The study result show that the producers, brokers, wholesalers and retailers could secure an average net market margin of birr (44), 0, 640 and 239 per quintal, respectively. Such distribution of the market margin in the case of Tomato business was 104.5.0.155 and 248.62 birr per quintal in the same order as stated in the case of Onion business. The total marketing margin for Onion and Tomato were ETB 834.74 and 508, respectively. In case of Onion business the wholesalers appropriated 76% of the total market margin created in the value chain while the retailers of Tomato took the biggest share (48.9%) of the margin created. Lack of warehouse, access to credit, improved seeds, and the expensiveness of agrochemicals were among the most critical impediments for better performance of the value chain. Each producer in the study area is applying bi-cropping strategy that is producing at least two crops, in order to compensate if in case there is a loss in one of the crops at any given point in time the value chain. Despite the fact that the primary producers under this research are supplying significant proportion of vegetable products to the central market they are totally excluded from any kind of investment/development packages of both the regional and federal governments. Therefore, any of the forthcoming policy and the existing ones must be formulated and restructured to provide sufficient considerations to these producers as they are the transitional phase towards the proliferation of domestic investors*

**Key words: agricultural value chain, forward integration, marketing margin, Qoka.**

# CHAPTER ONE: INTRODUCTION`

## 1.1 Introduction

This research is all about the analysis of value chain of irrigation based production of Onion and Tomato. The research area is Qoka peasant association located in Oromia regional state, East Showa zone Lume wereda. The main emphasis was given to the segment of the value chain which focused on the forward integration of the value chain of Onion and Tomato. Nevertheless to be complete in estimation of value addition it is imperative to have the beginning data of the value chain. To this end the production cost of the primary producers engaged in the production of both crops was estimated based on the information collected through structured questionnaires. The research was done based on the performance of one year data, 2019. The research has applied both qualitative and quantitative analysis methods. The targets of the research were primary producers, wholesalers, brokers, retailers and consumers operating in the research area. Support providing institutions like cooperative promotional agencies, producers’.

## 1.2 Background of the Study

The value chain is defined as the full range of activities which are required to bring a product or service from conception, through the different phases of production (involving a combination of physical transformation and the input of various producer services), delivery to final customers, and final disposal after use, Clay and Feeney, 2018. Others defined value chain as “a key framework for understanding how inputs and services are brought together and then used to grow, transform, or manufacture a product; how the product then moves physically from the producer to the customer; and how value increases along the way, Hellin and Meijer, (2006). The same Authors went further thinking that the value chain perspective provides an important means to understand business-to-business relationships that connect the chain, Mechanisms for increasing efficiency, and ways to enable businesses to increase productivity and add value. They also indicate that value chain provides a reference point for improvements in supporting services and the business environment. The value chain approach is now widely used as a pro-

poor initiative in such a way that farming communities engage in market-oriented production and small businesses are linked to markets.

Onion and tomato are high-value crops that have been produced by smallholder farmers and commercial growers for both local and export markets in Ethiopia. They are cultivated twice per year both under the irrigation and rain feed conditions in different parts of the country. However, the production and productivity of the crops are far below the international standards. For example the productivity of onion at national level is 10.02t/ha while the global average is 19.7 t/ha, Gebreselassie, 2013. Tomato covers only 3% of the total vegetable production area. However, the overall productivity of the crop is very low compared to the results obtained at the research centres and experiences of other countries, Zeleke and Derso (2015). Hence, we can realise that undertaking value chain analysis of the crops under this research, Onion and Tomato helps to understand whether the value chain is functioning according to its set-ups or not, and to understand the strength and weakness of its implementation and then to upgrade it if there is a need

This low yield results indicate that the presence of a huge gap in production and productivity at the country because of the absence of improved cultivars, application of inappropriate agronomic practices and limited attention/awareness on the benefits of intensive production. Even though, pointed out, as recently a little production progress has been observed after a government has reaffirmed its commitments to the agricultural sector in plan to scaling up the best practices by bringing up of the productivity of most average farmers, expansion of irrigation developments and production of high-value crops in suitable areas including of onion for smallholder farmers. Onion, even though it was an introduced vegetable crop, it has got popularity both by farmers and consumers in Ethiopia. It is among the most important vegetables produced on a large scale. From an economic point of view, onion is an important crop for the country when compared to other vegetables. Currently, the crop is grown as cash crop in different parts of the country, mainly by small scale farmers, commercial growers and state enterprises. The Awash Valley and the Lake Tana Region are currently the areas where the bulk of dry bulbs and onion seeds are produced. At national level, onion production reached 293,887.59 tons in the 2017/18 production season (CSA, 2017/18; Daniels & Fors (2015).

### **1.3 Statement of the Problem**

Ethiopian agricultural practice is characterized by so many problems and drawbacks. Since the theme of this research is to deal with the value chain approach in the sampled research area the statement of the problem is expected to identify those major problems related with the value chain of Onion and Tomato.

Agricultural value chains are characterized with specific problems and challenges. Kumilachew et al (2014) in their research on Risks in vegetable production, have identified the sources of risks and categorized them into technical, market, social, institutional and financial risk sources. Taye Mekie, 2017, absence or poor Post harvest technology, lack of coordination during production, usage of agricultural input beyond the recommended capacity, poor agronomic practice, lack of improved and high yield varieties, limited access to and supply of agricultural input like, reliable seed, insufficient product handling, sale problem and lack of persistent trader, lack of chemicals and high price, picking of onion before maturity date, producing low quality onion product are the most common production problems in vegetable value chain.

The land ownership (Agricultural value chains, 2016) is one of the pre-requisite to be included in the value chain programs. Farmers who do not have land ownership are usually excluded from access in value chain development programs. Most value chain projects were undertaken with objectives of promoting the private sectors, (Agricultural value chains, 2016) while private sectors (Dereje Deressa, personal communication) like the target groups in this research are considered as a threat to state initiated value chain development. As that of the empirical findings of Amikuzuno, and Ihle, 2010, the main challenge facing tomato producers in Toke Kutaye is improved seeds, market opportunity, market fluctuation, post-harvest, producers unable to set the price and production, etc.

According to Rikitu, 2015, distance from market, lack of land ownership, absence of participation in the decision of product market price is the major problems encountered by the tomato producers.



Insufficient orientation ( René A et al., Eds, 2014) towards product quality (lack of certifications, problems with mixing varieties, non-uniform, post-harvest handling and treatment), low productivity on plantations, mistrust and/or bad commercialization experiences (contractual insecurity, inadequate regulatory framework)... are some of the major of agricultural value chains.

According to Taye M. 2017, Producers are cheated by illegal traders, problems in contractual agreement between producer, and cooperative, absence of law enforcement on standards, lack of credit service, limited production and marketing extension support, imperfect price system(price setting problem), inadequate availability of market research and marketing information, malpractice in selling method (Scaling or Weighing) are the major problems in relation with marketing aspect of the value chain he concluded.

Regarding information asymmetry, Farm radio international, a broadcasting media established in Tanzania indicated that farmers often lack information about the market for their produce. They may not know how much their produce is really worth, and how much more they could earn if, for example, they transported it to a nearby market rather than selling it to a trader. The program mentioned that the producers may not know who the other players in the market are; what happens to their produce after they sell it; what types of products consumers want.

As the finding of a preliminary site visiting and interview of some of the producers by the writer of this research, the following were the major problems were identified;

- Lack of land ownership and inadvertent exclusion of primary producers and other actors under the value chain of this research;
- Absence of participation in the decision of product market price;
- limited access to and supply of agricultural input like, reliable seed fertilizers and agro chemicals;
- Insufficient orientation towards product quality (lack of certifications, problems with mixing varieties);
- Lack of Institutional supports
- The prevalence of market information asymmetry.

## **1.4 Objectives of the Study**

### **1.4.1 The main objective of the study is;**

The major objective of this study is to assess the agricultural value chain of the two major products, onion and tomato with respect of the forward integration.

### **1.4.2 The specific objectives of the study are;**

- To describe the value chain of Onion and Tomato and identify the actors involved in the value chain,
- To investigate the role of the primary actors with specific concern of the primary producers in the value chain,
- To assess the forward integration part of agricultural value chain in terms of creation of market margin and value addition
- To identify the major challenges in the value chains encountered by the primary actors and recommend the possible solutions.

## **1.5 Significance of the Study**

This study will contribute to the further interventions with regard to other agricultural commodity in the same area or similar products in different geographical areas. As per the preliminary assessment conducted in the research area significant number of primary producers has quitted the business due to frequent bankruptcy associated with low product price, crop failure and lack of financial backups. Consumers have also suffered too much due to all drawbacks connected with the steps along the value chain and these sufferings are continued. The federal government has disclosed its major concern in this area and is in need of professional contribution toward alleviating the problem. Besides this research has taken two crop at the same time and tied to analyse the value chain of both crops side by side. Culturally the producers never grow either onion or tomato alone. They rather grow both crops either simultaneously or alternatively. This is due to the persistence of market fluctuation impacting the viability of the business. Hence growing these crops in the above pattern is considered as risk averting strategy. Therefore the forth coming studies in value chain analysis may consider the gap.

## **1.6 Scope of the Study**

Geographically the scope of research has been confined in Oromia Regional State, East Shewa zone, Lume wereda, Qoka kebeles. Technically the study is limited to the forward integration aspect of the value chain of Onion and Tomato. This means that it focuses on the primary producers, wholesalers, retailers, consumers and other actors involved in the marketing business of the value chain. However, those important aspects like production cost analysis, and determination of farm gate price were included. Otherwise the back ward integration aspect like source of inputs mainly seed providers, chemical sellers; fertilizer distributors; land leaser out of the scope the research.

## **1.7 Limitation of the study**

Agricultural value chain analysis usually includes the segments starting from the suppliers or the back ward integration up to the delivery of the product or the service to the ultimate consumers. Nevertheless this research focuses on the forward integration part of the value chain of the crops only. The other limitation of the research is that it has been undertaken on one year data basis.

## **1.8 Organization of the Paper**

The research paper is organized and presented as follows. In this paper there are five chapters Chapter one is about the introduction, chapter two contains the review of related literature, chapter three contains the research design and methodology, chapter four contains the result and discussion and finally chapter five deals with the conclusion and recommendation. the title Page, Abstract, Acknowledgment, Table of Contents, List of Tables, and List of Figures are included. In Part two the introduction; literature review; the research design are included. Part three of the paper contains the result and discussion while part five of the paper deals with the conclusion and recommendation. Finally the reference and the appendix part of the paper appear at the end of the paper.

# CHAPTER TWO: REVIEW OF RELATED LITERATURES

## 2.1 Theoretical Literature

### 2.1.1 Concepts and definitions of Value Chain:

The review of past studies helps us in framing objectives, developing research design, variable selection, interpreting the results and in drawing meaningful conclusions. Accordingly for this research purpose different literatures have been read to articulate the objectives, methods of data collection and analysis to identify the roles played by primary actors and supporting institutions in OTVC of the research area and to estimate the marketing margin and value addition and to identify the major problems encountered by the value chain actors. The literature review has also assisted the researcher to assess the theory and concept of value chain and supply chain management. Hence the literature review in this research has been presented as follow.

According to Austin *et al.*,(2008), value chain can be defined as the full range of activities which are required to bring a product or service from conception, through the different phases of production (involving a combination of physical transformation and the input of various producer services), delivery to final customers, and final disposal after use.

As reviewed by Agustin, 2015, value chain is a key framework for understanding how inputs and services are brought together and then used to grow, transform, or manufacture a product; how the product moves physically from the producer to the customer; and how value increases along the way. He went further thinking that the value chain perspective provides an important means to understand business-to-business relationships that connect the chain

Value chain helps us to understand, Agustin, 2015, the mechanisms for increasing efficiency, and ways to enable businesses to increase productivity and add value. He also has mentioned that value chain provides a reference point for improvements in supporting services and the business environment. Agustin, 2015 mentioned that analysing value chain helps us to improve the competitiveness of the chain and is used as a pro-poor initiative in such a way that farming communities engage in market-oriented production and small businesses will have a link to their product markets.

Agustin (2015) went further saying that value chains are a key framework for understanding how a product moves from the producer to the customer. As such, the value chain perspective provides an important means to understand the business-business relationships, mechanisms for increasing efficiency, and ways to enable business to increase productivity and add value.

It provides a reference point for improvements in services and the business environment. It is a vehicle for pro-poor initiatives and for linking small businesses with the market. Value chains reside at the core of high-impact and sustainable initiatives focused on improving, productivity, competitiveness, entrepreneurship, and SME growth. According to them in general, an in-depth value chain analysis considers what are the economic costs along the value chain? Where is the most value added to the value chain? Who are the most important actors within the value chain? What is the institutional framework of the value chain? where are the bottlenecks in the value chain? Where is there market potential for growth? What is the size of the sector/chain? What is the potential for upgrading? What possible synergies exist?

### **2.1.2 The Difference Between Value Chain and Supply Chain**

The difference between supply chain and value chain, according to Daniels & Fors (2015), is that the primary focus of supply chains is on cost and efficiencies in supply, while value chains focus more on value creation, innovation, product development, and marketing. While both concepts describe, Daniels & Fors (2015), the same network of companies that interact to deliver goods and services, the value chain is essentially about value. The issue is not so much about which approach is superior or preferable, Daniels & Fors (2015), since both can deliver improved business performance and productivity gains for the chain's participants. Value chain analysis focuses on the addition of values at the different segments of the chain while supply chain management is interested on the operational efficiency of each segment and the satisfaction of the customers. This aspect of the supply chain has been stated by some authors as follow. The definition of Supply Chain Management is relatively imprecise and there exist a handful of different definitions in various literatures. The consensus of all of them is that supply chain management organizes and controls integrated logistics systems from the suppliers to a distinct end user, to optimize the process. Recycling and the re-use of materials are part of the supply chain management, (Daniels & Fors (2015)).

Interest in value chains is not new. Businesses have been using value chain analysis and implementation principles (Austin et al., 2008), for years to formulate and implement competitive strategies. Corporations use value chain analysis to answer questions such as, “Where in the value chain should my business be positioned to improve its performance?” The value chain’s popularity has been reinforced by many important business strategy themes, including core competencies, comparative and competitive advantage, outsourcing, vertical and horizontal integration, and best practices (Austin et al., 2008).

African farmers, Austin et al. (2008), have got increasing interest in value chain and the development and business communities involved in the African agriculture and agribusiness sectors have recently experienced a tremendous resurgence of interest in promoting value chains as a way to add value, diversify rural economies, and contribute to increasing rural household incomes in most sub-Saharan Africa (SSA) countries. Austin et al. (2008), value chains are increasingly recognized as a means to reduce the rural poverty prevalent in the region. For practitioners who have long been convinced of the need to look differently at agriculture – not just as a means of survival but as smaller or larger commercial businesses linked to domestic and global markets – and of the need to identify and tap into new sources of potential growth and value addition in the sector, this is a welcome development. Hopefully, renewed engagement will lead to a substantial increase in the flow of financial resources and assistance that is dedicated to supporting market sustainable agro-enterprises and agricultural value chains throughout the African continent.

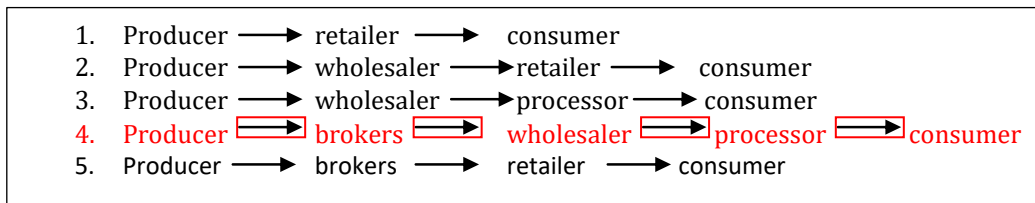
### **2.1.3 Value Chain Experiences in Onion and Tomato**

Onion (*Allium cepa* L.), Rikitu 2015, belongs to the genus *Allium* of the family *Alliaceae* which was believed to be originated in south-western Asia, being the centre of domestication and variability, from where it was spread first across the world and has been cultivated for over 4700 years as annuals for bulb production purposes. Onion is considered to be among the most popular vegetables in the world. It is consumed in small quantity almost daily as a seasoning or flavouring of varieties of dishes, in many countries of the world. It is naturally packaged vegetables consisting of fleshy, concentric scales that are enclosed in paper-like wrapping leaves, connected at the base by flattened stem disc.

Concerning the Tomato he mentioned that in the areas where irrigation water is available and farmers have better agricultural marketing networks, horticulture production is a major source of cash income for the households and one of the major sources of livelihood for a large number of transporters, middlemen and traders in the area.

Problems in the Tomato value chain hinder the potential gains that could have been attained from the existing opportunities. In this regard, Tomato value chain analysis is an interesting process that has not been investigated much in the study areas. Both buyers and sellers in the study areas usually do not play collective roles towards one another and there are no tomato processing activities. Under such circumstances, a study that focused on production problems, marketing problems, and roles and responsibilities of actors can play significant role towards the improvements of the existing system.

In identifying the stages through which the produce passes the same author stated the following. As it can be understood from the under stated box the main receivers from producers were retailers, wholesalers, processors and brokers. On top of this, channel comparison was made based on volume that passed through each channel. Accordingly, the chain of producer – wholesaler - retailer – consumer carry on the largest followed by producer – retailers – consumer and producer– consumer. Look in to the box below.



L

ate in this research paper the value chain referred in row four has been found to be the long standing flow of produces and still applicable one. The detail can be seen in the analysis part of the paper.

#### 2.1.4 Marketing

One of the major concern of this research is the marketing or forwarding of the products under consideration and marketing margin secured at each stage of the value chain by each actor.

Therefore, it is imperative to say certain concepts about marketing. Marketing is about identifying and meeting human and social needs.

Marketing is, Kotler and Keller 2016, the activity, set of institutions, and processes for creating, communicating, delivering, and exchanging offerings that have value for customers, clients, partners, and society at large. Coping with these exchange processes calls for a considerable amount of work and skill. Richard (2015) argue that , the link between wholesaler, big retailer, and consumer is vital to the success of the marketing activities. Marketing is(lecture note) a societal process by which individuals and groups obtain what they need and want through creating, offering, and exchanging products and services of value with others.

Marketing deals with the importance of inspection and standardization, Richard 2015, views that consumer' safety needs an inspection of products coupled with the nutritional labels, and would go a long way to ensure the product is safe for the consumers. Marketing operates (lecture note) in specific environment within which a business enterprise has to operate, consists of the actors and forces outside marketing functions that affects marketing management's ability to build and maintain successful relationships with target customer. Marketing is the sum total of political, economic, social, technological and other forces which moves around the business enterprise and in general offers both opportunities and threats (lecture note).

Concerning the coordination among the actors involved in agricultural value chain, (Abebe et al., 2011) have mention important aspects where governments should get involved establishing quality assuring institutions and prepare a platform for private businesses to have closer trading relationship with suppliers. They suggested that policy makers need to consider private sector as development partners so as to upgrade the supply chain that will in turn contribute to the improvement of production and quality of products.

Concerned government organizations operating on rural development, Abebe et al., 2011, need to consider traders as partners for development and facilitate coordination between producers so that they can resolve input and credit market imperfection. In supply chain management Abebe et al., 2011, strengthening marketing cooperatives should be among the strategies to upgrade the collection and processing of products so as to improve the shelf life of perishable products.



## **2.2 Empirical Literature**

The following literatures are those ones written on actual research carried out in similar or related topics with this research.

### **2.2.1 The Commitment of The Government of Ethiopia**

According to the Vegetable Production Technology Package developed by the Federal Democratic Republic of Ethiopia, 2018 the government of Ethiopia has laid out the details of strategies regarding the production, marketing and value chain, technology and sustainability of growth in fruits and vegetable business. The package summarized that the production and productivity of the horticulture sector has shown some improvement. However due to lack of or miss utilization of modern agricultural technology the production loss, deficiency in quality and low competitiveness have become to be the major challenges the performance of the private sector is very low as compared to the research centres. The package stated that in farmers field the productivity of Tomato is 180 qnt/ha, in private investment farm it is 250qnt/ha while at the research centre it is 500qun/ha. Concerning the application of irrigation the package indicated that out of the total 5.4 million hectares of land under cultivation 2.7 million is accessible for irrigation. However, the package mentioned one fact that the traditional way of irrigation focus using furrow and surface irrigation and this has caused salinity of soil, spread of disease, and reduced fertility of soil. Finally the package stated that the limitation with capacity has brought big challenge to transfer the current irrigation system in to modern technology.

### **2.2.2 The Importance of Tomato**

The cultivation of Tomato, Hanadi E Abd Elrazig et al. 2018, is still predominantly carried out by smallholding farmers. In The Sudan this is the case which is similar to the case in Ethiopia.

Tomato is one of the most important popular vegetable in Sudan, Hanadi et al, 2018 and it is a rich source of minerals, vitamins and organic acids, widely accepted and commonly used in a variety of dishes as raw, cooked or processed products more than any other vegetable. Recently, in Khartoum state, Abebe et al., 2011, the tomato cultivated area has increased, but still the crop is mainly grown by small farmers.

Farmers are interested in tomato production more than any other vegetable for its multiple harvests, which result in high profit per unit area. Khartoum State is the one of its most important areas and has experienced massive development in the production and marketing of the tomato. The crop handling is still dominated by traditional ways except for small segments in Khartoum state where modern farms, super markets and groceries exist. Moreover, the marketing system for tomato is traditional and lacks the conventional trade linkages system. Central wholesaler markets for tomato, for example, do not exist except partially in Khartoum state (Hanadi et al, 2018).

### **2.2.3 The Value Chains of Onion and Tomato**

Many farmers in Ethiopia are still operating at the subsistence level and a transformation to more commercial farming systems are desirable, (Getu and Ibrahim 2018). Attention is still very much focused on production increment and much less on fulfilling the demand and requirements of consumers. Towards the improvement of the value chain they have recommended the followings. Establishment of certified agro-dealers, training of farmers and development agents, to improve productivity and quality, introducing storage system, introduction of irrigation technology that save water, introducing modern harvesting technology, avoiding watering the field before harvest and implementing recommended harvesting procedures mentioned, introducing minimum quality requirement of bulb onion for marketing and strengthening onion seed producing and marketing cooperatives.

After reviewing existing data, contextual factors surrounding onion value chain were identified that there is no market extension system or institution that helps producers to take into account the key marketing factors like who will buy their harvest, what is the quality preference, time of delivery and also the possible supply increase as other farmers will also increase their production by looking at previous year price. They indicated that often due to failure to account for these factors, many farmers have lost a significant amount value and some have even failed to break even, as has been witnessed in Dudga district. This requires further investigating using existing literature to meet problems faced by producers in the selling of onion to a better and formal market at the region and country. The main problems smallholders face, as per their statement, farmers are marketing of onion. Due to this problem farmers produce below capacity because of fear of marketing. The main causes identified for the ineffectiveness of the markets, as stated by

them include the existence of high illegal brokers, low market awareness of farmers and oligopolistic market structure which results in lower income of the smallholder farmers in the district.

Mentioning the reason for the failure of shifting from subsistence farming to commercial farming Rikitu (2015) stated that high risks associated with transaction costs, limited food markets, limited insurance options and limited access to credit or in general the problem in the value chain are the major ones. The main challenge facing tomato producers in T/Kutaye, he went further saying, is improved seeds, market opportunity, market fluctuation, post-harvest, producers unable to set the price and production seasonality. He indicated that due to the many trading levels, and the fragmentation of tomato value chain actors, information is disjointed and lost down the chain. In particular the lack of market knowledge at the producer level prevents efforts to increase the competitiveness of the chain.

#### **2.2.4 Performance of Tomato Value Chain**

The performance of tomato value chain should be evaluated by considering associated costs, returns and value margins, Rikitu, (2015). The methods employed for analysis of performance were chain comparison and value margin. His analysis of value chain was intended to provide a systematic knowledge of the flow of goods and services from its origin of production to final destination (ultimate consumers). The distribution of costs and gross income at different levels is important in the business of tomato. Fresh Tomato requires greater attention during harvesting, packaging and transporting from the point of production to the final market. The marketing cost of the tomato mainly involves the cost of post-harvest activities incurred before reaching the consumer. This includes cost of harvesting and packaging (material and labour costs), handling (sorting, cleaning, grading, loading, and unloading), and transportation and tax costs. Generally, he said, these components constitute a large share in the total margin between the final retailer value and the cost of production. The margin calculation is done to show the distribution throughout the various actors as Tomato move from production to collectors, wholesalers, retail markets, and finally to consumers. Value margin can be used, he has further stated, to measure the share of the final selling price that is captured by a particular agent in the value chain. The relative size of various chain participants' gross margins can indicate where in the chain value is added and/or profits are made. In order to calculate the value margin of an agent, the value added

of Tomato for that particular agent was taken. In providing an example he indicated that the buying price of consumers was obtained by taking the average purchasing price of consumers and in order to measure the value added share of each agent, the value chain where all agents participated was selected.

According to the author Tomato produced in his research area passes through several intermediaries, *i.e.* collectors, wholesalers and retailers, with little value being added before reaching the end-users. The intermediate buyers obtain Tomato from the farmers at a lower price and they sell to the consumers at a higher price. The average price, according to his finding was 350 Br/qts whereas the price those consumers paid was 800, Br/qts, respectively. The research result also indicated the absence of organized institution and system group marketing, and lack of processing activities have made traders in a better position to dominate the market in pricing, he stated. Tomato is highly perishable product and has to reach the consumer as fast as possible. This hands the power to buyers and due to this its governance is buyer driven. The researcher indicated that the farmers, doing all the work of producing tomato and bearing the associated risks, took only 5.7% of the profit margin. This disproportionate share of benefits is the reflection of power relationship among actors. The result of linear regression model indicates that marketable supply of tomato is significantly affected by distance from market, price expectation, getting training, own land and tomato yield. Therefore, these variables require special attention if marketable supply is to be increased, he mentioned.

Onion is considered as one of the most important vegetable crops produced on large scale in Ethiopia and the area under onion is increasing from time to time mainly due to its high profitability and ease of production, and the increases in small scale irrigation areas, Hailu et al., (2017). Nevertheless the author said that despite the increase in cultivated areas, the productivity of onion is much lower than other African countries and the world average. Under the private farmers' holdings in 'Meher' season 2012/2013 the total area coverage by onion crop in the country were 21,865.4 hectare, with total production of 219,188.6 tons with average productivity of 10.02 tons per hectare. During the 2013/2014 cropping season, the total area under onion production was estimated to be 24, 375.7 hectares with an average yield of about 9.02 tons per hectare and estimated a total production of greater than 2, 19, 735.27 tons and commented that this is very low yield compared to the world average of 19.7 tons per hectare.

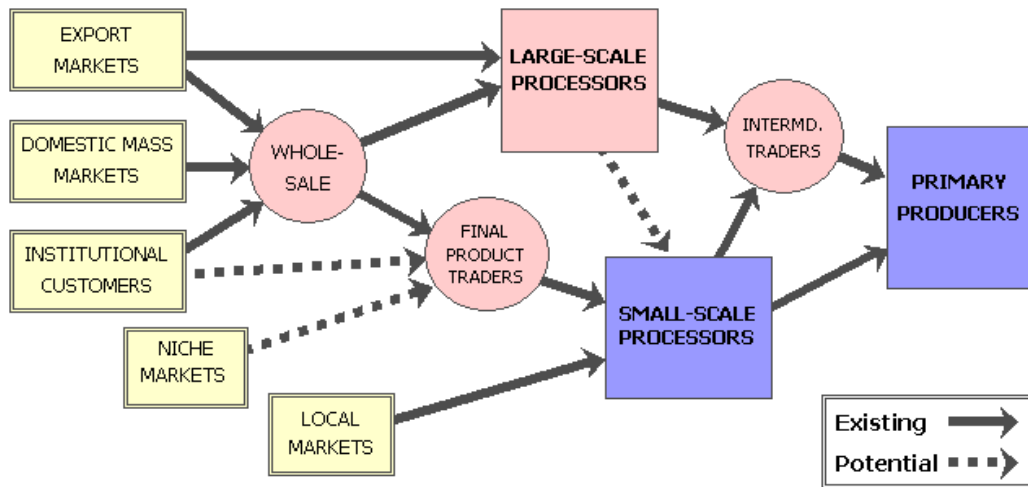
## 2.3 Conceptual Frame Work

Value chain assumes the relation, the coordination and the distribution of power and benefit among the participating actors in the value chain. It also assumes the presence of independent stakeholders and the existence specific interest among them. In general the framework of value chain can be based on, Mishra, et, al, 2018, the following basic assumptions; multiple actors are involved in agricultural value chains in which the actors can be either internal to the value chain, each actor performs a specific function or functions, coordination is generally not centralized, there may be one or multiple centres of gravity that control business transactions and policies, the concerns of all actors are taken into account and inter-firm linkages are mutually beneficial.

Hence based on the above assumptions and concepts the following section describes the conceptual frame work of the value chain under this research in step wise manners. The framework of the value chain depends mainly on the description of the market channels and the types of the actors involved in the value chain. In the channels the flow of product, finance and market information can be indicated. There are three steps followed to indicate the frame work and explained as follow.

**Step one, the first painting:** At this stage the researcher has developed a conceptual market map based on literature review, Farm Radio international. The following two figures were taken as conceptual setting to draw the market mapping of VCTO.

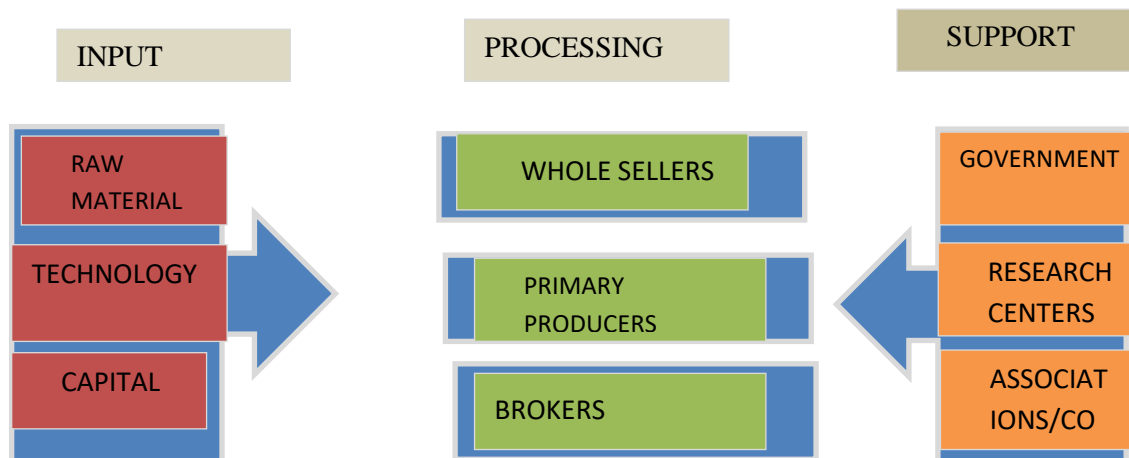
**Figure 1 Conceptual frame of market mapping**



*Source; An introduction to agricultural value chains, FARM RADIO INTERNATIONAL*

The sample frame of market mapping stated above indicates how the demand for the production from the ultimate buyer (customers and consumers) to the primary producers. The sampled frame includes all types of stakeholders and represents an ideal market mapping. Additionally the market mapping frame indicates the potential value connection to forward in later times. Therefore it is a good beginning to start with this kind of market mapping and envisages the research area market mapping accordingly. The other sample frame of market mapping is showed below. In this market mapping the value chain shows the conversion of raw materials to final consumer products. In the frame work of the market mapping the input suppliers, the processing actors and support groups are depicted. This shows the governance aspect of the value chain. Look the details below.

**Figure 2. Example of Input, process and support mapping**

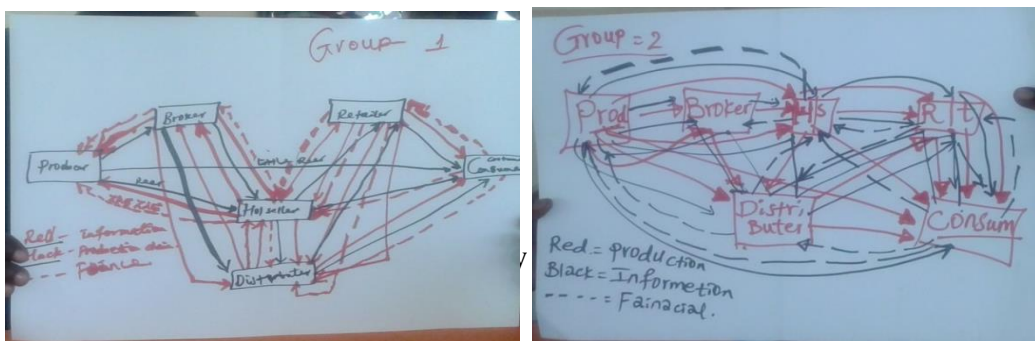


*Source; An introduction to agricultural value chains, farm radio international*

The above market mapping was taken from FARM RADIO INTERNATIONAL. On the left hand side of the diagram are the different stages (functions) of the cassava value chain. The first is input supply, then production, then collection, then processing and then retailing. In the middle are the actors in the chain that are involved at each stage. In some cases, the same actor maybe involved in more than one stage. On the right hand side of the diagram are the institutions that help support the actors in the value chain. This is where radio stations fit in.

**Step two:** Based on the above sample market mapping (taken as the first point of the value chain) in the second painting the researcher has undergone field assessment, conducted interviews and develops the first draft of the map for further discussion. Following the initial point of the market mapping indicate above the researcher undertook consultation with the main stakeholder and upon initiating and letting understood what market mapping means the participants tried to lay down the network connection in the marketing of both Onion and Tomato. The participants have appreciated the practice of the market mapping because it gave them the opportunity to look in to the relationship existing between the interacting elements in the value chain. Even though the mapping is not such a kind to attract the viewers the researcher has appreciated the effort of the participants and posted what the participants tried to draw and took it as the second point in developing the market mapping of the value chain under the research. The second point can be seen as follow.

**Figure 3. The Market Mapping Drawn by Members of the Focus Group**



Source: Focus group members

**Step three:** In the final step the practical and actual market mapping has been developed. Here the value chains are displayed under different scenarios after learning the fact that the marketing practices and value chains are experiencing different approach based on the interest of the

stakeholders involved in the value chain. Likewise the researcher has approached the mapping of the market according to the interest of the stake holders. However, all the market mappings have all parameters which indicate the flow of products, information and values. Besides, the mapping has been seen from the perspective of supply of inputs, (facilitators –driven value chain) to indicate the monopoly aspects on the control of input distribution and how that contributes to the formation of contraband trading or grey market in the inputs markets.

In addition to the above statements, the KI have confirmed that the market mapping can be categorized in to four main groups; Agricultural value chain under agricultural cooperative union, Demand and supply chain of fertilizer under cooperatives management and Demand and supply chain of chemical under cooperatives management and finally product flow marketing map. The schematic description of the four marketing maps indicated below.

The factor leading for such kind of market mappings, according to the key informants, is the scarcity in the supply of essential agricultural inputs like that of fertilizers and the associated interest of the government to ensure equitable distribution of them among the beneficiaries. To this end the government follows strict rule that these strategic inputs should be distributed through official channels established by primary producers' cooperatives and their upper echelons. To be the member of these channels land ownership is a governing criterion which the targeted producers of this research paper do not belonged to.

In product flow market mapping, figure7, the main players are the primary producers, the brokers, the wholesalers, the retailers and the consumers. However there is one unique member of the value chain labelled as the *Gleaners*. The gleaners run their business as appendages closer to the wholesalers and scavenging rejected product and selling them to those who cannot afford the retail prices and/or do not have the ability to go for the minimum purchase level set by the retailer, look at figure 7 below. The Gleaner are highly needed by the wholesalers and considered as profitable outlets of products which otherwise would be rejects. The following figure indicates the different value chains.



## CHAPTER THREE: RESEARCH DESIGN AND METHODOLOGY

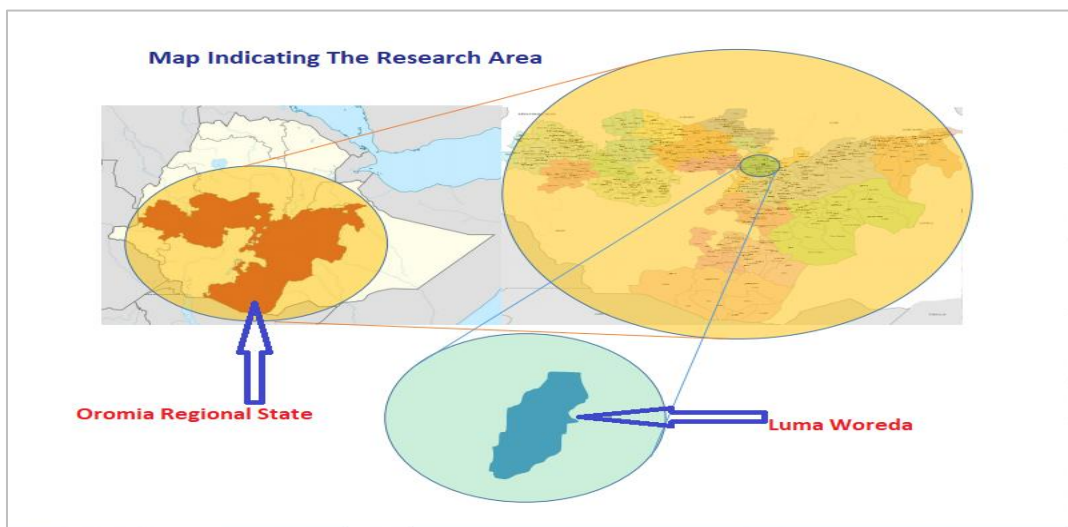
### 3.1 Background of the Study Area

The research has been conducted in one of the most popular area of the country with commercial production of vegetables mainly Onion and Tomato. The research area is located in Oromia regional state in East Shewa zone in Lume wereda particularly known as Qoka at 8<sup>0</sup>35'12.8"N 39<sup>0</sup>10'08.7E. It is accessible by road transportation and the express road stretched from Mojo town to Awassa contributes very largely for the transportation of farm products to the main central vegetable market; Addis Ababa, *Piazza, Atkelete Tera*. The researcher has selected the research site after repeated field visit. Lots of vegetable growers are undertaking their business in the area mainly due to the availability of sustainable supply of irrigation water Commercial vegetable production is also dominantly done by small scale vegetable production that are mostly migrating from place to place in search of farming land. Land for commercial vegetable farming can be obtained through annual lease from local cereal growing farmers.

The main source of water is hand dug borehole. The water table is shallow and the growers can manage to reach the ground water within 18-20 meter depth. The other source of irrigation water is Qoka Hydroelectric dam. The vegetable farms near to the Qoka dam can use the water from the dam without any payment while those farms far from the dam can get irrigation water from ground wells. Some commercial vegetable growers rent drilling machine to get the irrigation water. The cost of water well digging is very reasonable. However due to repeated cultivation and failure to apply crop rotation depletion of fertility and prevalence of disease and pest infestation have become to be big challenges and large size of farming land is being abandoned. According to Lume wereda agricultural and rural development office there are 35kebeles (the last structure of administration) with total population size of 45,576 households out of which 14,576 are farmers. Out of these kebeles sixteen of them are accessible for irrigation. Out of 47,582 hectares of arable land in the wereda 12,000 hectare are suitable for irrigation. The average land holding size of the area is 1.04ha/House hold with productivity of 190quintal/ha while the planned productivity was 255.

Majority of soil type is sandy followed by loam and clay soil, as per the information obtained from Mojo Agriculture office. Salinity is the major problem of the area due to continuous cropping of similar vegetables and excessive application of one type of fertilizers with no knowledge of soil status. In 2019 the local farmers have applied 67,000 quintals of fertilizer; NPS and Urea. According to the above office major crops are Onion and Tomato, 47% and 27% of all vegetables produced in 2019, respectively. This is because these two crops are strategically complementary and they serve the producers as risk averting strategy.

**Figure 1 Map of the Research Area**



According to the record obtained from Mojo Agriculture office, the total irrigable land size is estimated to be 12,000 hectares. However the actual land size developed under irrigation is very minimal. This is due to low involvement of the regional as well as the local government and limited capacity of private operators. The potential for irrigation farm is very high as there are both surface and underground water in the locality. The Mojo River which flows across all the irrigable lands is not exploited as much as the potential it can offer. Due to these limitations the exploitation of the water resource is very minimal and the total number of beneficiaries of irrigation farming in 2019 was 2585 out of which 2122 were men and 463 female. In this particular research the land under cultivation of the commercial vegetable farmers vary from one to four hectares.

The following table indicates the utilization of irrigation land and the distribution among the types of vegetable.

Table 1. Land Utilization under Irrigation and Distribution by the Type of Vegetables in 2019

Types of crop	Land size	
	lan	ctual
Water melon	433	11%
Tomato	1113	27%
Onion	1937	47%
Cabbage	214	5%
Habesha cabbage	155	4%
Red beet	8	0%
Carrot	5	0%
Hot pepper	245	6%
Total	4120	4110
Performance		100%
		0.998

Source: Mojo Agriculture Office

### 3.2 Research Design

In value chain analysis both qualitative and quantitative research can be applied. Hellin and Meijer, (2006), value chains can be mapped and analyzed using value chain analysis (VCA) which can include qualitative and/or quantitative tools. There are no fixed rules on which research approach is better but there are strong grounds for recommending that a qualitative approach is used first, followed (time and resources permitting) with a quantitative study. The analogy is one of painting a house: the first coat (the undercoat) is provided by short qualitative study (guidelines for the qualitative research, Hellin and Meijer, (2006). This study then has applied both qualitative and quantitative researches were applied. Descriptive statistics, frequency tables, defining Value Chain and mapping of the markets (the description of the physical flow of products, finances and information) were employed to present the result.

Qualitative data such as opinions on problems and challenges of the value chain were collected from the KI and FGD and displayed by using frequency distributions. The quantitative data such as volume of production and sales, production costs and productivity, market price and marketing costs were collected through structured questioner, analysed and tabulated. Values created in each step of the value chain of both crops, gross and net marketing margins, distributions of marketing margins among the actors of the value chain were calculated based of standard formulas.

### **3.3 Sources of Data**

The sources of data are classified in to two categories; primary and secondary. The primary sources of data includes the primary actors involved in the value chain; the producers, brokers, wholesalers, retailers and consumers and the KI and FGD and interviewed during the research.

#### **3.3.1 Techniques Applied to Collect the Data**

The primary data were collected using structured questionnaire of primary producers, brokers, wholesaler, retailers and consumers and check list or open ended questioner for the KI and FGD. The KIs include experts from cooperative development and promotion agency of Oromia regional state Melkasa Agricultural Research Centre and Agricultural Transformation Agency (ATA), the Bill Gate foundation.

#### **3.3.2 Target Population and Sampling**

The target population include the Primary actors of the value chain and support providers. The primary actors are producers, brokers, wholesalers, retailers, and consumers. The other targeted group or populations were support providers such as cooperative development and promotion agencies of Oromia and federal government, micro financial institutions operating in the Lume wereda, Melkasa agricultural research centre. The primary producers are those farmers operating in the research area and who have produced one or both types of the crops in the year of the research. The brokers are the middle men connecting the producers and the wholesalers on commission basis. The wholesalers are the bulk buyers seating in Addis Ababa piazza locally called *Atikelet tera*. The retailers were the final out late of the products to the consumers. The retailers included in this research are those traders who receive the products from the wholesaler and distribute to the consumers. All of the retailers are operating in Addis Ababa. The consumers are those ultimate buyers of the product living in Addis Ababa. The support providers include experts from cooperative development and promotion agency of Oromia regional state and Melkasa Agricultural Research Centre.

## **3.4 Sampling Methods and Sample size determination**

### **3.4.1 Sampling method**

The research area was purposely selected because of the main reason that it is one of the most popular commercial vegetable growing corner of the country and highly concentrated vegetable growing site in Oromia regional state. Purposive sampling method was also used to select the wholesalers, the brokers, the retailers and the consumer.

### **3.4.2 Sample Size Determination**

The size of the sample was decided based the availability of data in conjunction with the cost and time. However the minimum amount of sample was determined to at least be five units from each category of primary actors (producers, brokers, wholesalers, retailers and consumers). Hence the total number of sample unit is 25. Regarding support providing agents the Oromia Cooperative Promotion Agency, Oromia Producers cooperative and Agricultural Transformation Agency (ATA), the Bill Gate foundation were selected.

## **3.5 Method of Data Analysis and Presentation**

Market mapping and descriptive analysis was applied. The role and influences of the value chain actors and identification of major challenges of the value chain, estimation of the production, productivity and cost of production, market margin, value addition and distribution of market margin was done, tabulated and presented in value chain mapping and descriptive tables. The method of data analysis is described as follow.

### **3.5.1 Market Mapping and Identification of Major challenges**

**The Identification of Market Mapping;** The market mapping of the value chain has focused on understanding the characteristics of the primary actors and their relationships with in the value chain. The information was collected through FGD and KI as well as from secondary sources like Lume wereda Agricultural and Rural Development office and Oromia cooperative promotion agency. Various literatures have been reviewed and relevant types of market mappings have been selected and adopted to the nature of this research. The participants of FGD

were asked to map marketing network of Onion and Tomato which they assume to exist in the value chain. They have tried to identify the marketing channels and the role of the actors and their inputs was taken in to consideration. Guiding literatures were also referred and considered in the analysis of the market mapping of the value chain.

Value chain can assume the contextual situation and market mapping goes along the purpose or the interest of parties involved in the value chain. Mishra, Pradeep Kumar and Kushankur Dey (2018) have mentioned that the value chain can be of four kinds in their formation: buyer-driven, producer-driven, facilitator-driven, and integrated value chains. In this particular research analysis then it has been tried to investigate the value chain in to tree categories; value chain of Tomato and Onion, supply chain of fertilizer under cooperatives management, supply chain of chemical under cooperatives management and. The reason to categorize the value chain in such manner is the fact that both the federal and regional government were exclusively interested in the last two value chains. These value chains can be classified as facilitator driven value chains because both value chains were facilitated and managed by government bodies. The first value chains can be classified as buyer-driven value chain since the producers are producing based on the market situations. In this value chain the role of the traditional actors (producers, brokers, wholesalers and retailers have been identified. Finally the findings of the market mapping was presented in diagram and the flow of products, finance and market information were identified. Based on the market mapping the longest and shortest market channels were identified. The role and influences of each actor of the value chain has been identified and presented in the analysis of this research.

**Identification of The Problems and Major Challenges;** in this regard of the value chain relevant information were collected from KI and senior researchers in Melkas research centre. The KI and the researchers were selected carefully since the questioners were requiring deep knowledge and experiences to understand the substances embodied in the questioners. The problems and challenges faced by the actors of the value chain were evaluated in terms of their level of incidence, magnitudes and impacts and analysed using the concepts of market mapping and *likert scale* of 1-5 respectively and put in percentage. The level of incidence, magnitudes and

impacts associated with the challenges of the value chain were categorized base of class interval designed by the researcher.

### **3.5.2 Determination of Production, Productivity and Cost or Production**

The production and productivity of both crops was calculated and analysed based on the information collected from the producers through structured questioners. The cost of production was estimated based on the farming operations applied by the producers and market price at the production year when they operated the farm. In determination of the costs some costs like personal expenses and opportunity costs or bank charges are not included. The data were further consulted with the KI before undertaking the analysis.

### **3.5.3 Identification of Market Margin and Added Value, and the Distribution of Market Margin among the Primary Actors of the Value Chain.**

As B Muhammad et al. (2008) stated in their research of similar area marketing margins are indicators of trends in costs, profits and services provided by farmers and food marketing firms. According to them marketing margin is the difference between what the consumer pays for food and what the farmer receives. It can also be calculated as the percentage share received by each marketing intermediary. They further stressed that as the number of the intermediaries increases the cumulative effect will be strong. In their research they have included the farmers, wholesalers, retailers and consumers. Therefore in this research paper the methodology involved the collection and analysis of financial and physical data regarding the sales in volume and value. The gross and net marketing margins, the profits within the chain and the distribution of the benefits along the value chain were calculated and the most benefited and most harmed actors were identified. This approach has been followed in this research and the analysis was done based on the understated formulas and steps;

1. The per cent of marketing margin was estimated using the following formula.

$$MM = Ps/Sp * 100$$

Where; MM = Marketing Margin, Ps = Price spread, Sp= Sale price, and

Price spread = Sale price – Purchase price

2. Gross marketing margin was estimated employing the following formula.

$$GM = Sp - Pp, \text{ Where; } GM = \text{Gross Margin, } Sp = \text{Sale price, } Pp = \text{Purchase price.}$$

3. Net marketing margin was estimated using following formula.

$$NM = GM - TC. \text{ Where; } NM = \text{Net Margin, } GM = \text{Gross Margin and } TC = \text{Total cost}$$

Source: Muhammad et al, 2013.

### **Identification of the Added Value in the Value Chain**

Hailu et al., 2017, the value added can be collected from primary sources; the producers, wholesalers and retailers and calculated using the formula adopted by B. Muhammad et al (2008) as indicated below. These approaches have been well considered and applied in this research. However the brokers were found to have no visible financial information and it was difficult to identify their financial contributions in the value chain. Since their major role is to connect the producers and the wholesalers all costs associated with brokers have gone to the wholesalers. Likewise the contribution of the transporters or carriers was limited to only providing service in terms of transporting the product from farmers' site to consumers' market. Therefore their designated costs were all included in the marketing costs associated with the wholesaler. The following formulas have been applied to estimate marketing margins.

**Estimation of Total Gross Marketing Margin (TGMM);** this is the total value added in the value chain and was calculated by using the formula indicated below.

$$TGMM = \frac{\text{Finalconsumer'Price} - \text{Producers'price}}{\text{Consumers'price}} \times 100$$

**Estimation of Total Gross Marketing Margin Obtained by The Producers (TGMp);** this is the producer's margin or share in the consumer price and was calculated as:

$$TGMp = \frac{\text{Finalconsumers'price} - \text{Grossmarketingmargin}}{\text{Consumers'price}} \times 100$$

N: B the consumers' price is the price at which the retailers sold the product to the consumers or the price at which the consumers bought the product from the retailers.



The gross margin was calculated based on the cumulative values of production and market prices at the time when the producers sold their products. All data were from the memories of the producers, wholesaler, retailer and consumers.

The share of market margin secured by the wholesalers, retailers and producers were calculated based on the sales data obtained from the actors through the structured questioners. To estimate their share the following formulas have been applied;

**Margi Received by Wholesaler**

$$\mathbf{GMM_{cw} = \frac{TGM_{cw}}{TGMM}}$$

**Margin Received by Retailer**

$$\mathbf{GMM_{cw} = \frac{TGM_r}{TGMM}}$$

**Gross Marketing Margin Received by The Producers**

$$\mathbf{GMM_p = 100\% - TGMM}$$

Where; TGMM, total gross marketing margin, GMM<sub>cw</sub>; total gross marketing margin received by central wholesalers, GMM<sub>r</sub>; total gross marketing margin received by retailers, GMM<sub>p</sub>; portion of the price paid by end consumer that belongs to the farmer as a producer.

Source; Addisu Hailu, Lemma Zemedu and etal., 2016.

## **CHAPTER FOUR: RESULT AND DISCUSSION**

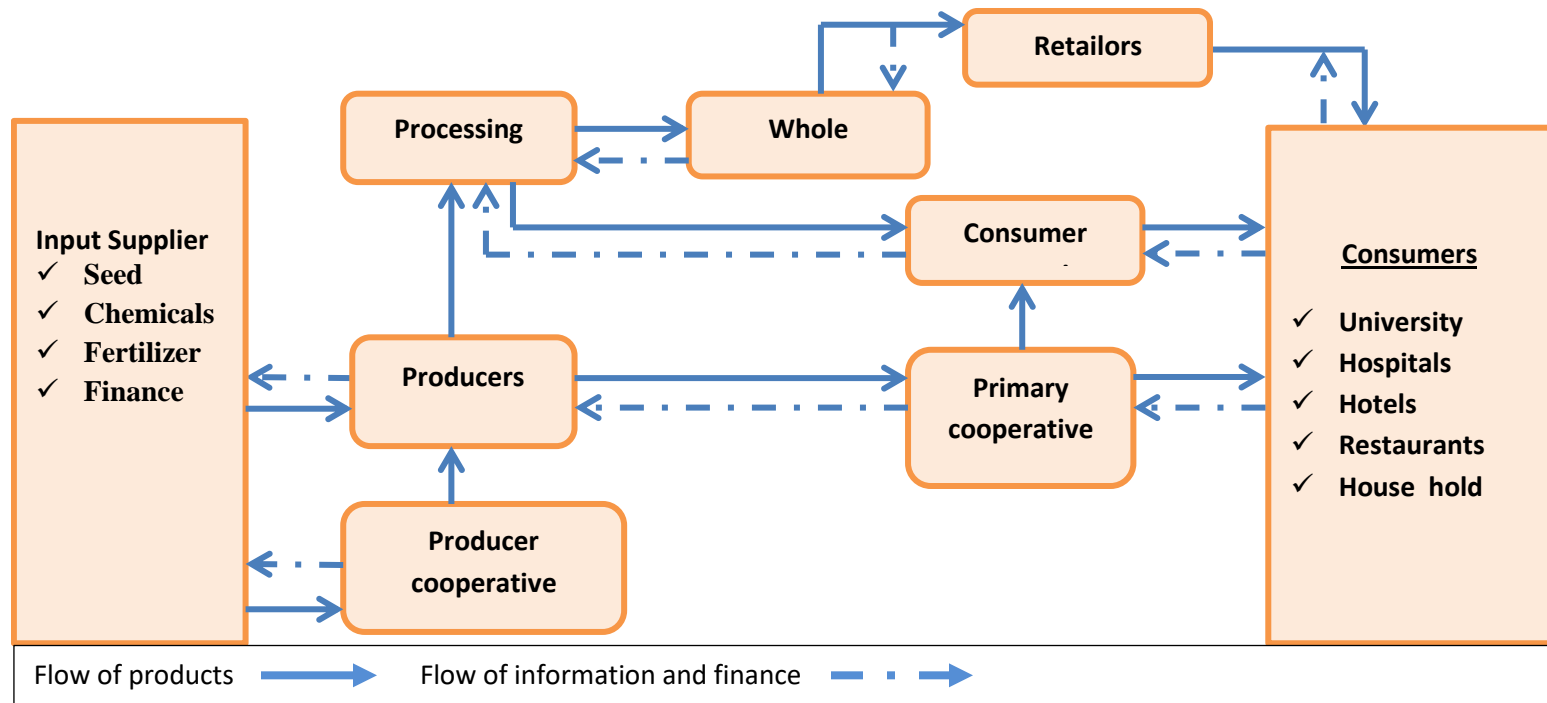
### **4.1 The Results and Discussion**

#### **4.1.1 Market mapping of value chain of Onion and Tomato**

The market mapping of the value chains have been found to be of four types; three facilitators-driven value chains and one producers-driven value chain. The facilitators-driven value chains are cooperatives dominated market mappings and indicate the flow of products, finance and information as per the pre-designed line of control of the flow products so as to diminish the lengthy steps of marketing and consequently reduce the consumer price. In this market mapping the role of the broker is avoided.

The producers-driven market mapping indicates the flow of products, finance and information among the primary actors according to the customary operation and all actors operate under the rule of marketing and in compliance of the value chain governance. Here the brokers and wholesalers are the major influential actors in controlling the price setting and distribution channels. In the cooperative dominated market mapping, however, the main objectives of the value chain is to ensure the consumer sovereignty by ensuring fair consumer pricing and no one of the actors is dominant in the value chain. The value chain indicated below shows one of the cooperative dominated or facilitator driven value chain. In this value chain the products flow from the producers to primary cooperatives and processing plants. From the primary cooperatives the products directly flow to consumers by avoiding the brokers and wholesalers. From the processing plants however the wholesalers can collect the products and distribute to retailers and the retailers distribute to consumers. In facilitators-driven value chain the flow of production and market price are determined by collective decisions at cooperative level and more or less the prices are stable. The following figure indicates the cooperative dominated ( facilitator –driven) value chain

Figure 4 Agricultural Cooperative Union Dominated Value Chain (Facilitator-Driven Value Chain)

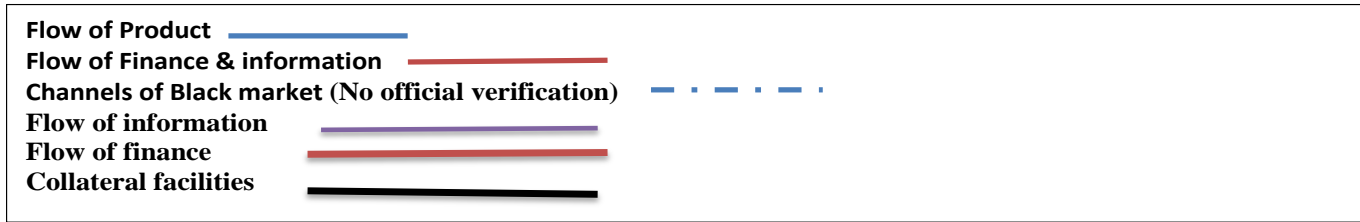
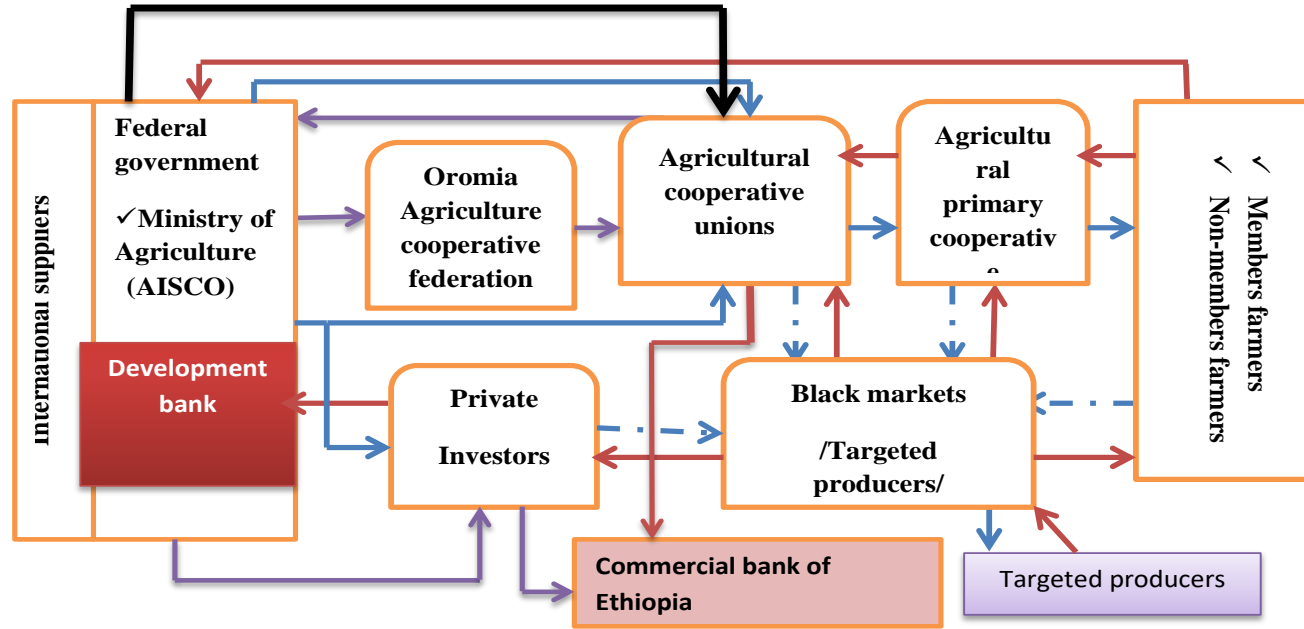


Source; Own drawing

The other important aspect of the value chain considered in this particular analysis is the supply chain of inputs. The major inputs in the production of Tomato and Onion are chemicals and fertilizer, improved seed, fuel and lubricants, etc. From among these inputs chemical and fertilizer are the most strategic inputs where the involvement of both regional and federal governments is highly visible (Dereje Deressa, KI). Particularly fertilizer is completely under the monopoly of federal government while private enterprises are allowed to participate in pesticide and disease controlling chemicals. Fertilizers are procured through international bidding having undergone domestic demand assessment on yearly basis. All stakeholders from grass root up to the ministry the federal democratic republic of Ethiopia shall be involved in the assessment of the demand for and the distribution of fertilizer under strict control. Fertilizers are distributed to both small farmers and commercial investors through this system. The small farmers get fertilizers through primary cooperatives while commercial farms or investors can get from Agricultural Input Supply Agency; state office. It is here where the research target groups or those primary producers of Tomato and Onion face big trouble in accessing the fertilizers. These primary producers, the target of this research, are neither the member of primary cooperative nor licensed investors. As a consequence they are obliged to purchase fertilizers from illegal or gray markets created through the invisible lines.

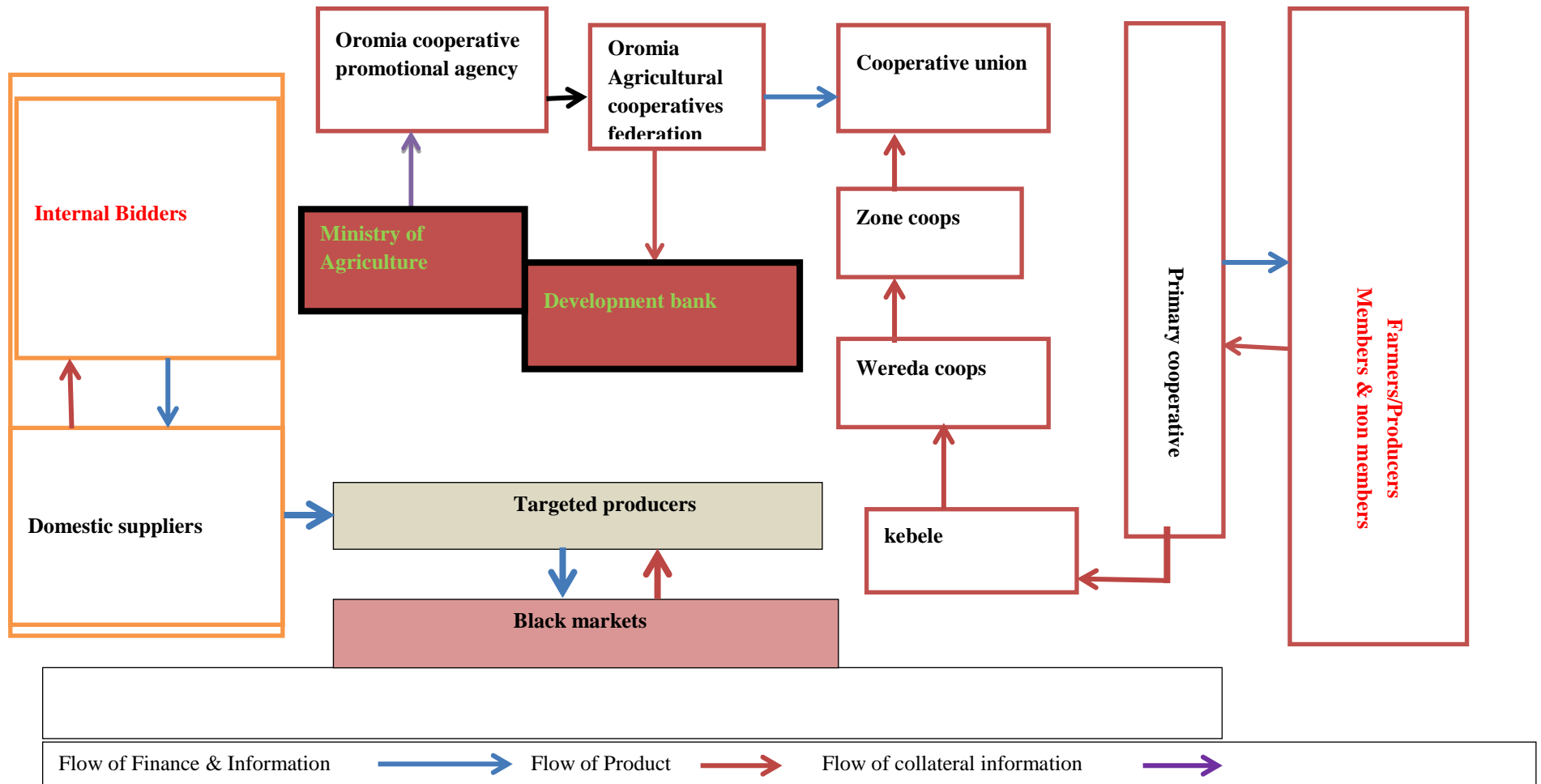
According to the professionals and authorities interviewed, this gray market gets its supply from agricultural unions, primary cooperatives and small farmers. The cooperatives and the investors are well linked also to these illegal markets. The member farmers are involved in this illegal market in such a way that they collect the fertilizer from the coops on credit basis and cash it to the illegal markets to cover their immediate expenditure anticipating enduring the future debt pressure. The primary producers under this research then are collecting the fertilizers from these illegal markets because the markets are the only alternative and accessible for them. This source of chemicals has forced the producers to pile up product price which sometimes, according to the interviewee, forced certain producers got kicked out of the business. The cooperative dominated value chain of inputs or Facilitator-driven value chain of both fertilizer and agro chemicals are shown below.

Figure 5 Supply Chain of Fertilizer Under The Control of Cooperatives (Facilitator-Driven Value Chain)



Source; Own drawing

Figure 6 Supply Chain of Chemical Under Cooperatives Management (Facilitator-Driven Value Chain)

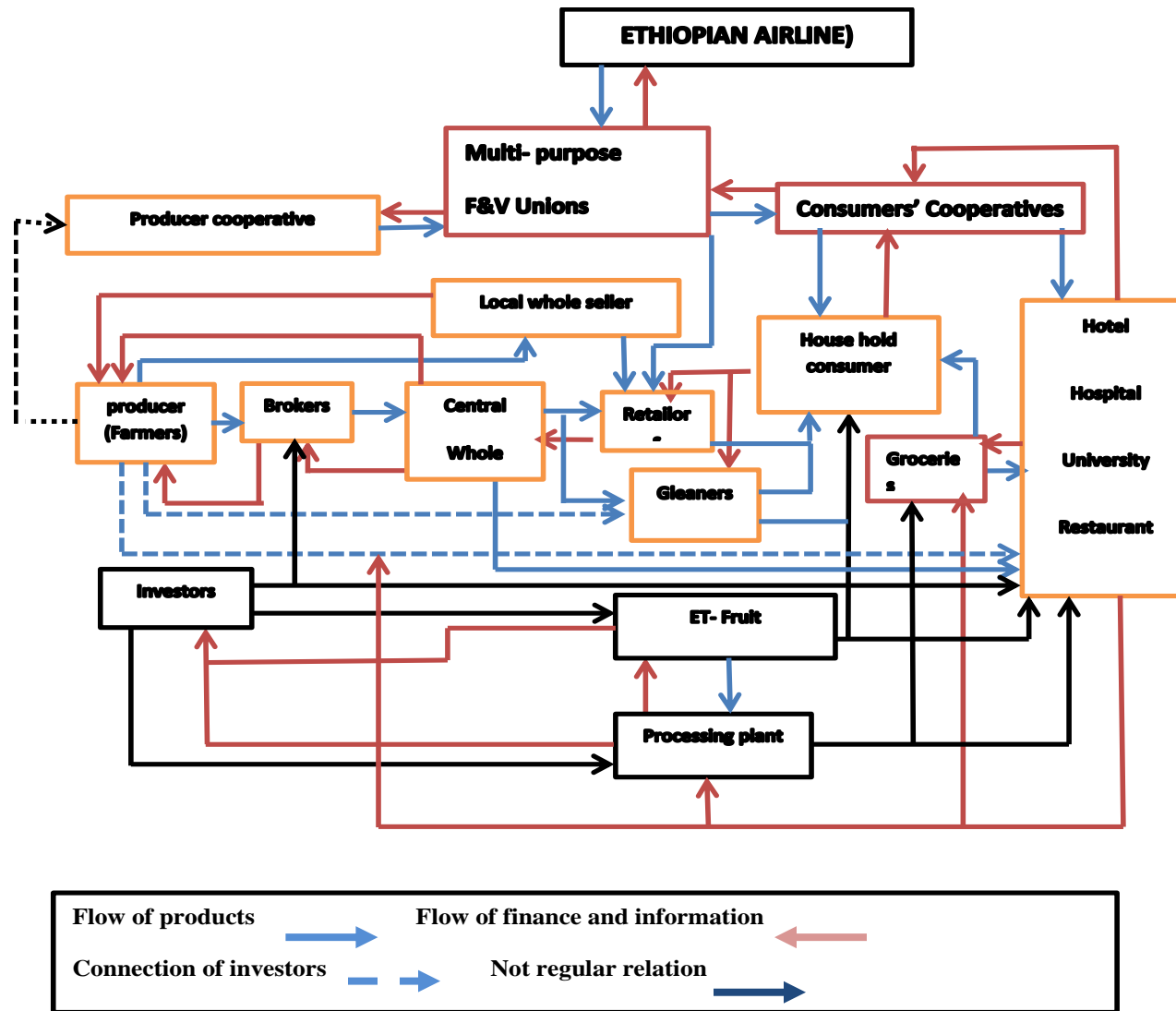


Source; own drawing

As it can be seen in the above figure of supply chain of fertilizer distribution there is a huge involvement of the federal government and financial institutions. Here the Ministry Natural Resources and Rural Development (MoNRRD) on behalf the federal government of Ethiopia provides collateral bondage in agreement with the regional government of Oromia, (personal contact, Dereje Deressa) to the Development Bank of Ethiopia (DBO) so that the later will procure the fertilizer from international market through list bidder policy and under the supervision of MoNRRD. The letter will allocate the input to agricultural cooperative union and the later will in turn distribute to the primary cooperatives where the member farmers will collect from. The collection of finance starts at the primary producers' cooperative which is in charge of collecting money through direct sales of the fertilizer to member farmers. Likewise the money goes back through the same rout the product flow until it reaches the DBO. Here we can see that due to the very genesis of the system the producers of Onion and Tomato under this research were not included in the distribution channel. This, according to the producers interviewed during the research, is due to the fact that they do not have land ownership and they are not registered as permanent residents of the locality and do not have identity card. Therefore, they responded during the interview that, they always get the fertilizer from an open market that accesses the fertilizer in shadowed routs. According to the KI this contraband market gets its supply from agricultural unions, primary cooperatives and member farmers through shadowed rout too.

Up to now we could have a look in to kinds of value chain mainly dominated by the facilitators, in this case producers or marketing cooperatives where the targets of this research (primary produces, brokers and wholesalers) are totally excluded. Now let's look in to the value chain of Onion and Tomato in the research area where all traditional actors including the primary producers, the brokers, the wholesalers, the retailers and ultimate consumers are participating. In this value chain, figure 8, we can clearly see the interaction of the main actors in the value chain of both crops. Here the value chain begins from the primary producers of the crop who are the main concern of this research. The primary producers are approached by the broker's long time vigilance before the crops mature in the field. The brokers pay regular attention to the producers and their crop since the day of planting and establish the connection until harvesting and collection.

Figure 7 Value Chain of Onion and Tomato Based on Quokka Irrigation Based Farmers (Buyers-driven value chain)



Source: Own drawing



The brokers are doing all these on behalf of the wholesalers situated in Addis Ababa vegetable market known as *Atklet tera, in Piazza*. More details of the discussion can be seen underneath.

#### **4.1.2 Market Mapping and Position of the Targeted Actors Including the Gleaners**

As mentioned in the above paragraphs the market mapping is the first entry point of the research to identify the participants of the value chain and their relative power in the governance of the chain. Both crops share similar line of connection or value chain. As it has been indicated in chapter two of this paper the participants tried to depict the business network they assume to exist between the actors. By doing so the participants were taken by the surprise that it was their first time ever to think in broader perspectives of the business linkage and the relative contribution of the actors in the value chain. However no single participant had a clue regarding the participation or contribution of supporting agents such as *the research centres, credit institutions, and administrative organs at grass root level*. The FGD members of the targeted group have unanimously ascertained that there is no single supportive agent by their side in the production and marketing activities.

The brokers feel the same in a sense that they are not considered as business partners adding value to the chain. They are rather considered as free launchers because they are doing the business without investing a coin and exploit of the opportunities created by the producers and wholesalers only. The wholesalers do also share the same feeling and say that the market network is not regulated and the whole environment of trading do not enhance the competitiveness the value chain. This matter has been dealt in more detail as follow.

##### **4.1.2.1 Marketing Channels Identified in the Value Chain**

As it has been indicated in market mapping part of this paper the research has identified fourteen distinct marketing channels. Most of the marketing channels are dominated by private operators while there are few government facilitated channels established mainly to regulate the market through stabilizing the consumer prices of products. One good example in this regard is the appearance of Ethiopian Airlines. The airline is procuring fresh vegetables including Onion and Tomato to supply its flight catering service. The airline is purchasing the products through standard agreement with Multiple Purpose Fruit and Vegetable producers Unions located in

Zeway town. The airline extends credit service and provides advices, regarding the quality standard of the products, to the union. This is similar to what the European markets are performing as Good Agricultural Practice (GAP).

The following table shows details of the marketing channel depicted in figure 8 above.

Table 2 Marketing channels indicating the flow of products from the producers up the consumers according to the value channel drawn in figure 8.

<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
producer	Producer	Multi- purpose F&V	EAL	
	cooperative	Unions		
producer	Producer	Multi- purpose F&V	C/	(HHUR)
	cooperative	Unions	Cooperatives	
producer	Producer	Multi- purpose F&V	C/	(HC)
	cooperative	Unions	Cooperatives	
producer	Producer	Consumers'	(HC)	
	cooperative	Cooperatives		
producer	Produce	Consumers'	(HHUR)	
	cooperative	Cooperatives		
producer	Local wholesaler	Retailers	(HC)	
producer	Broker	Central wholesalers	Retailers	(HC)
producer	Broker	Central wholesalers	Gleaners	HC)
produce	Broker	Central wholesalers	Gleaners	(HHUR)
producer	Brokerr	Central wholesalers	Groceries	(HHUR)
Investors	ET-Fruit	(HC)		
Investors	ET-Fruit	(HHUR)		
Investors	Processing Plant	Groceries	(HHUR)	
Investors	Processing plant	Groceries	(HC)	

Source; Own sketch drawn from marketing map.

The producers and wholesalers have explained to the researcher that this marketing channel is varying from time to time and too much irregular and very difficult to regulate. This chaotic market channel has created opportunity for products of low quality to inundate the consumer market and created challenges to the competitiveness of the value chain. Slight majority (57%) of the channel, table 35, go up to four stages while the (43%) of the channels go up to fifth stages, table 35. In this market channel the primary producers are small scale producers having land size of two to four hectares. The investors, indicated in the above table, were included to give the general picture only otherwise they were not the target of the research.

#### **4.1.2.2 The Primary Actors**

The primary actors means those who are directly involved in the chain and operating the value chain. According to the value chain explained in figure 8 and table 35 the primary actors are directly involved in to produce the products, to set the price, exchange the product information and finance through formal/informal business agreement. The supporting actors are not as such active party in the value chain. They are more involved in those facilitator driven value chain, refer to the figure indicating the facilitators driven value chain. In such value chain they control the marketing operation, dictate the product price, regulate the flow of inputs, provide technical advises and observe the implementation of rules and regulation concerning the administration of the value chain. Details of the primary actors and their involvement in the value chain and the role of supporting agents are explained as follow;

##### **The Producers**

In this research the producers were those who operate irrigation farming and grow Onion and Tomato in the sampled area. The area is called Qoka kebele found in Lume wereda East Showa of Oromia regional state. Look at figure one. These producers are the combination of both residents and non-residents of the area but regarding the farming nearly all of them do not have their own land and operate the farming on land leased from local farmers. The producers, according to the field observation and key informants (KI), operate the farming using irrigation water by extracting underground water using fuel powered pumps. Look at picture 2. According to the opinion of the producers and KI majority of the producers do not have residential ID and land ownership title which are the prerequisite to receive farm inputs and get the market linkages.

The producers are not organized in any kind of associations and are pursuing nomadic form of business; moving from place to place to obtain farming land. Since they do not own land, any land under their temporary control is exposed to excessive exploitation and degradation. These producers are under constant risk of loss of market to their production arising from the perishable nature of the production and precarious nature of market price. They are also under full control of the brokers due to information asymmetry regarding the consumers' market and the prevalence of big mistrust along the value chain.

One of the strategies being applied by the farmers to mitigate or avoid risk associated impacts is to cultivate both Onion and Tomato at same time on split plot of land in one season or alternatively in consecutive season. The researcher has confirmed this fact during the field visit that those who have used to plant both crops could have avoided the total bankruptcy.

### **The Brokers**

The brokers in this particular value chain are very important partners of the producers. The brokers in this value chain do not have offices, trade licences and don't pay any kind of taxes. They simply serve as connectors of the producers and the wholesalers (WS). This situation help the broker to be risk free actors in the value chain and they will secure their market share whether or not there is trouble in the market. According to the opinions of the producers, KI and the participants of FGD, the role of the brokers is almost non-substitutable. The brokers are living in the vicinity of the producers and supervise the farm plots of the producer from the time of planting up to maturity. Some brokers establish pre-market relationship with the producers since the time of sowing and follow each and every activity of the producers. In this course of time they fix marketing arrangements with the wholesalers. Like this they develop inventory of production stock in their command area and maintain their value chain sustainably.

This makes them highly dependable by the producers because in a time of surplus production it is only the broker who comes at the rescue of the producers to pick and distribute the products. Once the crops matured in the field then the risk of marketing comes forward to the producers. Most of the time, the price of the products plummets sharply and suddenly. Due to information asymmetry that exists between the broker and the producers the brokers will have more power to persuade the producers to receive any price and sell their production at disadvantageous prices. It is also true sometimes that the brokers sniff out good price in the market and help the producers to enjoy it. Therefore in the time of difficult times the brokers are at the side of the producers.

The brokers also act like insurance institute for the business transaction between the producer and wholesaler. As per the information collected through questionnaire and KI the brokers do not invest anything to connect the producers and the wholesalers except their hand cellophane. In this case the brokers expend only telephone charges and create the connection between the wholesalers and the producers. The wholesalers are highly dependent on the brokers and accept

the decisions of the brokers. Hence without the need for corporal meeting between the two parties (brokers and wholesaler) both the product and financial exchange takes place. This reduces the hassle of the producers and the risk of wholesalers. As it has been indicated in picture 36 there are considerable channels without the brokers. However those market channels do not include the producers who are targeted in this research and highly controlled by government systems.

### **The Wholesalers (WS)**

In this value chain research the wholesalers (WS) are relatively more privileged group of actors. The wholesalers are stationed in Addis Ababa, Piazza a place known as Atikilt Tera (Avenue where vegetables are sold). The WS are permanently settled in Addis Ababa and seldom visit the producers up on the calling of the brokers. They buy the product from the producers through the facilitative role of the brokers. Up on receiving all information the WS will transfer the money directly to the account of the producer then the broker undertake all marketing activity in the field of the producer including checking the quality of the production, packing and transporting. In this particular value chain research it is the responsibility of the WS to cover all expenses including product values, quality supervision and transportation of the product till their warehouses. The WSs are control of the marketing prices of the products including the crops under this research. According to the information obtained from KI the WSs check their level of stock at hand and forecast the amount of demands in the forthcoming date and set the price accordingly. Every early morning hour the brokers and the WSs exchange information regarding the price of the day. Surprisingly enough this exchange of information takes place among vast number of brokers and WSs along all geographical areas. The price is set very precisely as per the quality of the products. The quality of the products, as explained by the producers and the brokers, is related with size and colour of the products.

### **The Retailers**

The retailers are the last out let of the products and the first contact of points of the consumers in the value chain. The retailers are of two kinds, as the researcher observed during the market visiting. The first ones are the regular retailers who do have fixed places, trade licences and pay taxes and second ones are the Gleaners who collect the left-over from the wholesalers during the

distribution of products to the retailers and are considered as scavengers. The gleaners are considered as illegal marketers and are always under the chase of police or uniform personnel locally called “Denb Askebari”. The formal retailers of Onion and Tomato at Piazza mostly prefer to sell not less than five kilos per head. In case of other vegetables they may go down as low as two or three kilos, but they will sell less than a kilo of any kind of the products. The gleaners however do not have measuring scale and sale the vegetables based on number piece of vegetables. They put certain pieces of vegetable in one group and call it “Medebe”. Each Medebe has fixed price and the number of the vegetable in each Medebe is similar and same in price. There are other retailers outside of Piazza selling vegetables in the same mode like the gleaners. These markets are called “Gullet”. Gullets are not the focus of their value chain and are not included in this research. The targets of the formal retailers are hotels, individual households who can afford buying more than two or three kilos at a time. The customers of the gleaner are those who cannot afford buying the vegetables by kilos. According to the opinions of the wholesaler and the customers themselves the gleaners are more expensive than the formal retailers but and easily accessible to the low paying customers.

### **The Consumers**

In this research we considered the consumer living in Addis Ababa. The consumers are mainly the households since the aim of the research was to get the last users of the products. The consumers included in this research were all buying from the formal retailers. Each consumers targeted in this particular research told to the researcher that they come to the market every three or five days. Therefore it was not easy to track each consumer for some numbers of transactions as this was impractical. Therefore we preferred to interview any customer coming to the selected retailers and recorded their responses. The major problems of the consumers, as per their responses were price fluctuation, lack of market information and lack of packing materials.

#### **4.1.2.3 Supporting Actors**

As indicated in figure 4-7 all of the supporting actors are governmental institutions. These institutions are engaged, as the experts explained during interview, in the formulation of policies and laws to control the distribution of farm inputs and productions. The support sector has completely avoided the target group due to the very founding principles that in order to be any producer to be part and parcel of the packages of rural development he/she has to have land

ownership title. The producers targeted by this research are mostly migrated from other areas and lease the land from peasant farmers and operate the business. According to some experts these producers are thought to be rivalries to the state driven policy regarding the rural development policy which are based on land ownership criteria.

According to the information from KI in Oromia Cooperative Promotion Agency (OCPA), the agency mobilizes resident farmers in to cooperatives, provide training and technical assistances in the management of cooperatives, develop regulation on cooperatives and observe their application, undertake financial auditing, etc. The agency focuses on multipurpose agricultural cooperatives and credit and saving associations. It gives low or no assistances to the targeted producers due to the direction of the government. One of the conspicuous achievements being raised by the agency is the market linkage created between Meki-Batu primary cooperative and Ethiopian Airlines. The airline collects fresh vegetables and in return it provides training, financial assistance in terms of down payment and expands product engagements depending on the improvement displayed from the cooperative in meeting quality standards. With regard to product standardization the KIs suggested that product standardization is the most challenging and unmet problem in the value chain. The fallouts of lack of product standardization are lack of premium price for good quality produces, high consumer risks, discourages best producers, enhance product adulterations and reduce competitiveness. The other most difficult problem is price setting. The agency does nothing around product price. They added that price is manoeuvred by the brokers as they possess market information monopoly. Lack of attractive prices and absence of product quality standardizations in the domestic market encourage the incubation of illegal market and the migration of products to neighbouring countries through contraband routes.

The research centres are one of the supporting institutions expected to play significant role in the adaptation and dissemination of modern practices and high yielding varieties. One of these institutions is Melkassa Agricultural Research Centre (MARC) located in Awash Melkassa sixteen km away from Adama city, west Oromia regional state. The research centre has released 7 and 17 local varieties and registered 19 and 22 varieties of Onion and Tomato. All of these varieties are meant for small holding farmers within the framework of government packages of rural development. The KI from the MARC have explained during the interview that the centre

has no special packages regarding the producers targeted in this research and those producers know to be large scale operators in vegetables and related farming. These biased attitudes towards large scale producers and commercial farmers used to exist long years before but no one of the KI could explain the reasons. The research centre has started to study the value chain of vegetable production two years ago but did not complete it.

The federal and regional cooperative offices, the producer's cooperatives and agricultural marketing cooperatives are still following the rule of the federal and regional governments and have completely marginalized this segment of the producers. Due to these facts the targeted producers are exposed to higher inflation of market price of inputs. The value chain governance is totally against them.

#### **4.1.3 The Products (Onion and Tomato)**

The primary producers are producing both products using domestic and foreign varieties. Tomato is most preferred product by the primary producers due to its comparative advantage over the Onion. Tomato farming provides multiple harvesting in one production season while Onion gives one time harvesting. Onion has relatively longer shelf time and resists harsher condition during harvesting in contrast to that of Tomato. Both crops last almost the same period of time from sowing to harvesting that is four to five months depending on the variety. These products are the major and the biggest source of means of income for the target groups operating in the research area, Qoka. The following tables indicate the production of Onion and Tomato at national level. According to table 2 below from 2013/14 to 2018/19 the average production of Tomato and Onion, CSA, 2020 was, 220,610 and 796,763 quintals respectively. These figures, however, do not indicate the performance of the commercial growers. The CSA surveys undertaken in the mentioned years do not include the production of commercial farms. However the result of the survey as indicated in the understated table clearly shows significant size of population is engaged in the production of Onion and Tomato. For the last six years on average, 222,610 households have cultivated 10,684 hectares of land annually on average. This means the distribution of land per household is 0.047 hectares while the productivity is 55 qt/ha for Tomato. For Onion the figures are 0.037 hectares per households and 87 qt/ha. Both land holding size and productivity of the small or peasant farmers is by far lower than that of the



targeted area. This indicates that the national figure does not help regarding the status of the commercial farmers. The detail can be seen in table 2 mentioned below.

Table 3 Land coverage and Production of Tomato at national level

Production year	Number Holders	Area in Hectares	Distribution %	Production in quintals	Distribution	Yield (QT/HA)
2013/14	241,355	7,257	19%	393,730	19%	54.26
2014/15	2 20,506	5,027	13%	307,000	15%	61.07
2015/16	304,825	9,524	25%	591,563	28%	62.11
2016/17	322,918	6,299	17%	283,648	14%	45.03
2017/18	270,577	5,235	14%	277,745.38	13%	53.05
2018/19	195,984	4,322	11%	235,838	11%	54.57
Total	1,335,659	37,664	100%	2,089,524	100%	55.48
Average	222,610	10,684		348,254		55.08

Source: CSA, 2020

Table 4 Land coverage and Production of Onion at national level

Production year	Number Holders	Area in Hectares	Distribution %	Production in Quintals	Distribution	Yield (QT/HA)
2013/14	773,807	24,375.70	16.69%	2,197,353	15.71%	90.15
2014/15	2 20,506	5,026.68	3.44%	307,000	2.19%	61.07
2015/16	790,807	29,517.01	20.21%	2,648,494	18.93%	89.73
2016/17	862,937	33,603.39	23.00%	3,274,752	23.41%	97.45
2017/18	796,763	25,369.00	17.37%	2,938,876	21.01%	92.79
2018/19	675,624	28,185	19.29%	2,624,783	18.76%	93.00
Total	3,899,938	146,077	100.00%	13,991,258	100.00%	
Average	649,990	24,346	0	2,331,876	0	87

Source: CSA, 2020

#### **4.1.4 Why the Producers Opt to Operate Both Crops**

The producers in the research area used to produce both crops since they began the business. The producers responded during the interview that relying on one of the vegetable at any given point of time is highly risky business as the market of vegetable in Ethiopia is extremely unregulated and prices are erratic. Lack of market information regarding the volume of production, the level of demand and product price, absence of quality control, unchecked input prices, lack of marketing infrastructure are the major risk factors for loss of market, excess production and ultimately financial bankruptcy. These situation varies from season to season and from crop to crop within a given production season or between consecutive seasons. In a given production season Onion business may be lucrative while that of Tomato may be bankruptedor vies versa. If both crops are profitable that season is when he producers may get good remuneration, but the chance is low, as explained by the producers. This ups and down circumstance is uniquely associated with the producers while nearly all the intermediaries are immunized from these troubles, as per the opinions of KI and FGD participants.

#### **4.1.5 Production and Productivity**

The targeted producers are used to produce both crops simultaneously in one season or alternatively. This practice of production is ascribed for two factors. The first one is the similarity of production activity and the second one is the volume of the demand for the vegetables. As indicated in the above paragraphs the production practice of both crops are similar in terms of land preparations, major types of inputs required, like fertilizers, some agrochemicals, machineries and construction materials. The labour force has specialized equally in both crops and the management styles like contractual agreement, work assignment, payment of remunerations are quite similar. Regarding the productivity of the vegetable under this research it can be seen in table 4 and 5 that the average productivity of Onion and Tomato is 179 and 255 quintals/ha respectively. According to the information obtained from MARC the average productivity of the released varieties at the research centre and farmers field is 338 and 428 quintals/ha for Onion and Tomato respectively, MARC, 2019. This indicates that the average productivity of Onion and Tomato under the target producers is only 51% and 60% of the released varieties respectively. From this comparison one can judge that the relationship between the research centre and the target producers is very weak or the extension activity of the

research centre is impact-less. The following table indicate the details of productivity of Tomato and Onion.

Table 5 Production and productivity of sampled Tomato producers in the research area

Sl.no.	Size of the farm(Ha) Per producer*	Total production(quintal)	Productivity(quintal/ha)
1	2.50	800	<b>320</b>
2	3.00	600	<b>200</b>
Total	5.50	1,400	<b>255</b>

Source: Own calculation. . \* The data was taken from the questioner. \*\* The data was taken from the questioner

Table 6 Production and productivity of sampled Onion producers in the research area

Sl.no.	Size of the farm(Ha) Per producer*	Total production(qt)**	Productivity (qt/ha)
1	4	660	165
2	2	200	100
3	4	900	225
4	1	204	204
Total/average	11	1964	179

Source: Own calculation. \* The data was taken from the questioner. \*\* The data was taken from the questioner

#### 4.1.6 Production Methods and Techniques

The major intention of this part is to display how the value creation starts through an arduous effort of the producers. The second intention is that these two crops share nearly same types of resources and agricultural practice. As stated in earlier paragraphs the producers stick on producing the two crops either simultaneously or alternatively to avert unprecedented market failures to be occurred in one of them. The theme of this research is to analyse the value chain of

onion and tomato. Therefore it is expedient to treat the production operations and costs of both crops.

#### **4.1.6.1 Agronomic Practice of Onion applied by the Sampled Farmers**

**Preparatory phase:** Almost all of the agronomic practices with Onion and tomato are similar. This has created good opportunity for the farmers to grow both crops simultaneously or consecutively in similar plot of land without significant alteration of farming arrangements. In preparatory phase the producers undertake the preparation of nursery site, the main planting site and organization of inputs. The following operations indicate the procedures of production of Onion.

**Preparation of nursery site:** Onion is seed propagated plant. Onion is though best grown in cold weather the suitable time of sowing is September and October. Usually the size of seed single seed bed is one meter width and five meter length. The nursery site is established near to the source of water. In case of which this is impossible the farmers drug the water from borehole or adjacent river using water pump. Usually the nursery site is dug, pulverized and levelled manually. The seeds are sowed on raised up beds which are fifty centimetres apart left for supervision walking. The nursery sites are fenced to protect intruder and animals. Mostly the farmers establish their farm camp near to the nursery site to monitor it closely. The most critical matter in the production of both crops is the availability of water. As it has been mentioned before the farmers avail the necessary amount of water either by pumping from Qoka hydroelectric dam or from hand dug water wells. The following pictures may indicate the settlements and how these producers are toiling to get water frothier crops. All pictures are contemporary pictures taken during the research activity. All the pictures attached below are taken by the researcher at that research area but do not represent the crop season of the production under the research.

Figure 8 Producers' camp near to nursery site in the research area



Figure 9 Water pumping site to feed water temporary reservoir



Figure 10 Temporary irrigation water servitor developed by the producers





Figure 11 Plastic tubes for the distribution of water in the plant fields



Nursery operation (preparation of seedling): after availing irrigation water and the preparation of nursery site seeds are sowed in rows of as closer as five centimetres between rows while no space is left between seeds. Onion seed is sown in limited and confined plot of land for maximum or intensive management so that vigorous planting material will be produced; otherwise there is no restriction to sow directly on the main planting land. The seedling shall stay for 30-45 days on seed bed. At nursery site agronomic practices like watering, chemical spraying, fertilizing, weeding and hoeing, cleaning are practiced to ensure the production of resilient seedling that tolerate the harsh environment in the main planting field. Some producers purchase onion seedlings from seedling grower. Theses growers may be registered or not. Some may not even have permanent farm site and are unknown by the farmers. These seedling growers can get primary seed from uncertified sources and will not be held accountable to any malicious acts.

Figure 12 One of the nursery on Onion in the sample area



***Preparation of main field;*** this is an operation to prepare the main planting field where the seedlings will be transplanted and maintained for two to three months. The main field can be located at any distance far away from the nursery site as far as it is deemed not to create significant transportation problems. The main field is ploughed by tractor with horse power of at least 50HP. The main planting site is developed using rental tractors from individuals who are engaged in supply of machinery rental service. These individuals provide the service in the research area on regular bases with excellent skill and reliability. After the first ploughing the soil will be pulverized with tractor mounted disc harrow. The next step is to cut the field in to planting ridges where planting rows are developed. The producers construct these ridges using labour force which is locally available. Here the labour comes with his/her own farm tools.

Figure 13 Tractor plowing the main field of planting Onion in the research area



***Transplanting of seedlings:*** Seedlings are carefully removed from the nursery site and washed in water to inspect the health status of the root part to ensure that fungus affected seedlings are no transplanted. The seedling are carefully transported to the main field manually and planted there in rows of not less than 60cm apart. Before transplanting the planting row will be irrigated to facilitate the planting operation and enhance the adaptation of the seedling to the new environment.

Figure 14 Transplanted Onion plant in the main field





**Maintenance of mother plant:** In the main field the major agronomic operation such as watering, chemical spraying for disease and pest controlling, fertilizing, weeding and hoeing shall be done under certain frequencies based on field observations. The mother plant will stay in the main field for about three to four months until sufficient bulb size with matured red colour is developed. Usually the farmers check the maturity with simple observation otherwise in case of suspicion they pull out sample plant and check for maturity. The following picture shows what the onion field looks like.

Figure 15 Workers in Onion field removing weeds



**Harvesting:** This the most critical part of the production operation. The producers are much worried at this stage because once the bulb is removed there will be no alternative except disposing in any circumstance. Onion, unlike Tomato, is a one-time harvesting crop and there will be no chance for the farmer to remain in the field. This puts the farmers in a vulnerable position against the other marketing forces. Harvesting of Onion begins by loosening the planting site so that the picking of the bulb can be simple and faster. After loosening the site the laborers pick and collect the bulb with upper leaf and fringes. Each labourer can collect as much as he/she can do in a day and remove both upper and lower attachments. Look at the picture below. After removing the upper and lower fringes the bulbs will be filled in local made wooden crates and weighed in the field to load. All of the operations are carried out manually and the major farm tool in harvesting of Onion is sickle. The harvested Onion bulb has to be picked and sent to the market on same

day otherwise it will get deteriorated in colour and external appearance. The final product will be transported to the market by ISUZU medium and large trucks. In case of Onion production the operation is a bit easier than that of Tomato. Onion does not require that much care and is thought to be a business of small farmers or producers who do have limited capital. However the volume of the production of Onion per unit area is lower than that of Tomato. Since Onion is picked from the farm at once the risk associated with price fluctuation is high. The following picture shows how Onion bulbs are cut and made ready for marketing.

Figure 16 Workers cutting Onion bulb at farmer field taken as sample



#### **4.1.6.2 Agronomic practice of Tomato applied by the sampled farmers**

**Preparatory phase:** Almost all of the agronomic practices with Onion and tomato are similar. This has created good opportunity for the farmers to grow both crops simultaneously or consecutively in similar plot of land without significant alteration of farming arrangements. In preparatory phase the producers undertake the preparation of nursery site, the main planting site and organization of inputs. The following operations indicate the procedures of production of Tomato.



***Preparation of nursery site:*** With regard to Tomato production, according to the producers interviewed in the research, there are two options. The first option is to buy the seedling from floriculture firms operating in Qoka and surrounding. Some of the suppliers are Segenta Ethio Cutting, Dume Orange and Florence's. The second option is to raise the seedling on rented plot of land near to the planting site. This second option is relatively less likely applied by the Tomato producers. However for a matter of consistency the farming practice of raising Tomato seedling has been treated here. Tomato, like Onion is seed propagated plant. Tomato is categorized as hot weather crop and is grown best in the rift valley. The suitable time of sowing of Tomato seed is November to December. Usually the size of single seed bed is one meter width and five meter length. The nursery site is established near to the source of water. In case of which this is impossible the farmers drag the water from borehole or adjacent river using water pump. Usually the nursery site is dug, disked and levelled manually. Fifty centimetres walking easel is left between each seed bed. The nursery site must be fenced to protect intruder and animals. Mostly the farmers establish their farm camp near to the nursery site to monitor it closely. All the pictures depicted with Onion farming referring to these operations hold same with Tomato farming.

***Preparation of seedling:*** In the case of seedling preparation at the producers' field, after the preparation of nursery site, the Tomato seeds are sowed in rows of as close as twenty centimetres between rows while no space is left between seeds. Tomato seeds are sown on confined plot of land for maximum or intensive management so that vigorous planting material will be produced; otherwise there is no restriction to sow directly on the main planting land. The seedling shall stay for 30 days on seed bed. At nursery site agronomic practices like watering, chemical spraying, fertilizing, weeding and hoeing, cleaning are practiced to ensure the production of resilient seedling that tolerate the harsh environment in the main planting field. Currently, according to interviewed producers, most of the Tomato producers purchase Tomato seedlings from seedling grower. These growers are registered floricultures or Green houses operating in/around the research area. The Green houses receive the seeds of Tomato from the contracting farmer and raise under the green house and sale back to the producers. The green houses grow the seedling out of the seeds supplied by the farmer himself only. Unlike the case of Onion Tomato seedling suppliers are operating under registered license and do have defined address.

**Preparation of main field;** like that of Onion farming this is an operation to prepare the main planting field where the seedlings will be transplanted and maintained for two to three months. The main field can be located at any distance far away from the nursery site as far as it is deemed not to create significant transportation problems. The main field is ploughed by tractor with horse power of at least 50HP. After the first ploughing the soil will be pulverized with tractor mounted disc harrow. The next step is to cut the entire field in to sub field where planting rows are developed.

Figure 17 Preparation of planting site for Tomato in one of the research area



**Transplanting of seedlings:** Seedlings are carefully removed from the nursery site and washed in water to inspect the health status of the root part to ensure that fungus affected seedlings are no transplanted. The seedling are carefully transported to the main field manually and planted there in rows of not less than 60cm apart. Before transplanting the planting row will be irrigated to facilitate the planting operation and enhance the adaptation of the seedling to the new environment. The following picture shows how Tomato is planted in the sampled research area.

Figure 18 A worker planting Tomto seedling in raw



After transplanting there are two options to follow to the producers. The first option is to leave the plant crawl on soil hedge to be constructed between any two rows of Tomato plants all over the time until the last harvesting. The second option is to slip at an interval of fifty cm between the stalks and hang up the plant on the horizontal bar staked between the two stalks. This kind of management has recently come to be so popular among the Tomato producers despite the huge investment required. The following figure indicates Tomato plant maintenance under staking.

Figure 19 Young Tomato plant with staking



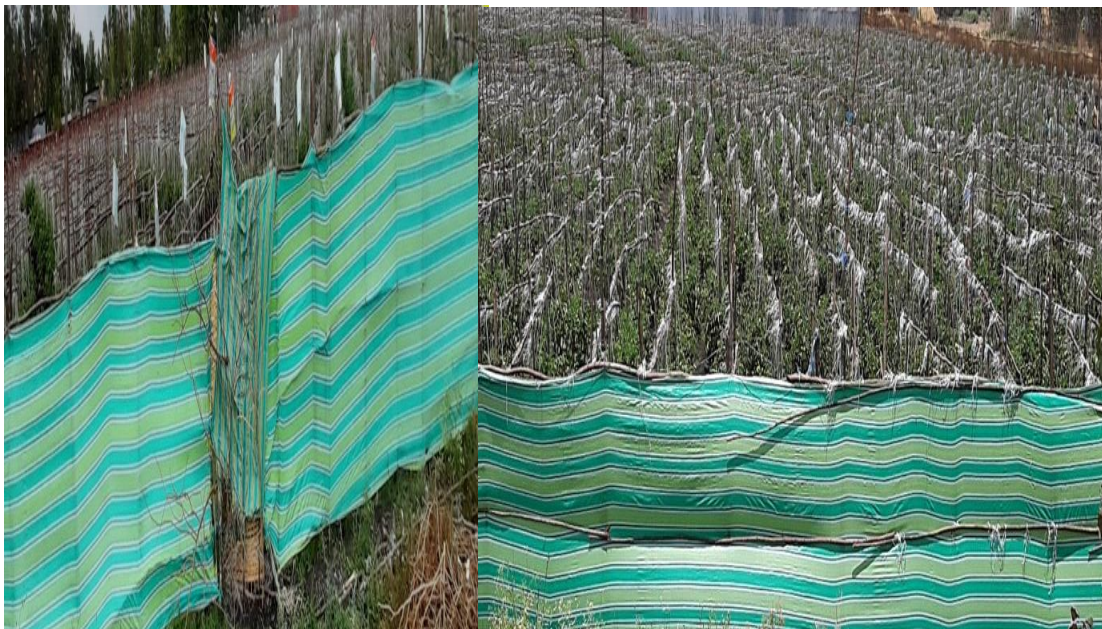
**Maintenance of mother Tomato plant:** In the main field the major agronomic operation such as watering, chemical spraying for disease and pest controlling, fertilizing, weeding and hoeing



shall be done under certain frequencies based on field observations. The mother plant will stay in the main field for about three to four months until sufficient fruit size with matured light-red colour is developed. Unlike the case of Onion checking the maturity level with Tomato fruits is simple as the fruits are exposed above the ground.

Tomato is a climbing plant and needs supporting frame to give maximum production. Some Tomato producers erect wood support in the field and tie each tomato plant against the wood support. This practice requires big investment and is followed by few growers. During the field visit majority of the growers have constructed a plastic fence to protect the plant from wind, spread of pests and diseases, dust and, according to some growers, from evil eyes. Great numbers of Tomato producers are growing Tomato without staking leaving the plant to crawl along the field. The following picture shows Tomato plant field with staking or using wood support.

Figure 20 Tomato field with plastic canvases fence



**Harvesting:** In case of Tomato harvesting is done in multiple rounds per crop season (four or five times), the producers may gate a chance to enjoy good price between series of harvesting intervals. Harvesting of Tomato starts up on the emergence of light red fruits on the bearing stock and continues until all fruits are exhausted and the leaves are shrinking or shattered off the plant. This practice may go on for five to six rounds and in some fields may goes for ten rounds,



as explained by some Tomato growers interviewed in the field. Harvesting most labour intensive practice. The fruits are picked manually and filled in pail. The pails will be transferred to wood or plastic crate and weighed in the field for selling.

Figure 21 A worker supervising mature Tomato plant field



Figure 22 Tomato field with exhausted Tomato plant



4.

The following table indicates the similarity of production operation which makes both crops operationally possible with in similar resources packages and agricultural practices. Types of operation, required in puts and sources of inputs are mostly similar. However the frequency, intensity and unit cost of inputs are different. In the case of Tomato it requires higher investment and operational costs but more than one harvesting sometimes up to four rounds and hence production. This can be seen in production cost estimation part of this paper.

Table 7 Comparison of field management of Onion and Tomato

Description	Input/practice required		Source
	Tomato	Onion	
<b>Seedling preparation</b>	Tomato	Onion	
Seed bed preparation	Nursery site	Nursery site	Leased land
Sowing	Improved seed	Improved seed	Local breeders/ Importers
Seed bed mulching	Local materials	Local materials	Grass/ straw
Watering	Underground water	Underground water	Underground water
Mulch removal	Labor	Labor	Local/Migrant labor
Weeding	Labor	Labor	Local/Migrant labor
Spraying	Fungicides and pesticides	Fungicides and pesticides	Importers/ cooperatives
Hoeing	Labor	Labor	Local/Migrant labor
Fertilizing	DAP/UREA/NPS	DAP/UREA/NPS	Cooperatives
Procurement of seedling	Possible	No possible	
<b>Field preparation and planting</b>			
First plowing	Tractor	Tractor	Rent
Second poughing/disking	Tractor	Tractor	Rent
Planting ridge construction	Labor	Labor	Local/Migrant labor
Fence construction	Plastic canvas and Eucalyptus	Not usual	Local markets
<b>Transplanting</b>			
Prep planting watering	Labor and ground water	Labor and ground water	Local
Seedling transportation	Labor	Labor	Local/Migrant labor
Planting	Seedlings	Seedlings	Nursery
<b>Plant maintenance</b>			
Watering	Ground water	Ground water	Local/Migrant labor
Fertilizing	DAP/UREA	DAP/UREA	Cooperatives
Hoeing	Labor	Labor	
Spraying	Fungicides and pesticides	Fungicides and pesticides	Importers/ cooperatives
Weeding	Labor	Labor	Local/Migrant labor
<b>Cont. Comparison of field</b>			
Staking/Erecting support poles	Eucalyptus and plastic rope	Not practiced	Local markets
<b>Harvesting</b>			
Loosening of soil	Not required	Labor and fork	Local/Migrant labor
Up rooting	Not required	Local/Migrant labor	Local/Migrant labor
Removal of fringes	Not required	Local/Migrant labor	Local/Migrant labor
Picking matured fruits	Local/Migrant labor	Not required	Local/Migrant labor
Bagging	Plastic/wooden crate	Plastic bags/wooden crate	Local markets
Weighing	Weighing scale	Weighing scale	Rent/ Local market
Screening	Local/Migrant labor	Local/Migrant labor	Local markets
Loading	Local/Migrant labor	Local/Migrant labor	Local markets



As it can be seen clearly in the above table operating both crops maximizes the scale resource utilization and increase the level of competitiveness in the value chain. Therefore in addition to risk averting strategy economics of scale can be seen as the second advantage.

#### **4.1.8 Inputs utilization by the producers of Tomato and Onion**

As stated in the above section, dealing with the two crops (Tomato and Onion) are closely similar in terms of agronomic practices and the difference in their input requirement is also slight. According to the sampled farmers of both crops, it is a widely customary and many times compulsory to undertake the development of both crops simultaneously or alternatively to avert the risk of bankruptcy due to crop or/and market failure. The similarity in agronomic operations and marketing activities of both crops allows the producers to utilize the resources at economies of scale.

The major consumable inputs requirements of both crops are improved seed, fertilizers, pesticide and fungicide chemicals and farm labour. Since most of the growers are using water pump to irrigate their farms fuel and lubricant is also major input. Land is the leading factor that determines the decision of the operators to grow or not the crops in a given season in a given area. As it has been mentioned in the above section of this paper the growers under this study lease lands from the resident farmers for limited time usually in the dry season and hand over to the owner in the wet season so that the owners shall plant household consumable cereals. The size of the land under business of the sampled producers varies from 1 to 4 hectares. All of the sampled producers unanimously grieved the agony from shortage of inputs both in quantity, quality and timely delivery. The most critical resources, as mentioned by the interviewed producers, are the following;

***Improved Seeds:*** The seed are of two kinds, improved hybrid seeds and locally grown Open Pollinated Variety, The hybrid seeds are imported from international markets by domestic registered companies and undergo the national verification and adaptation trial test, criteria for registration. As of today there are 26 and 39 registered varieties of hybrid seeds in the country, (MARC, 2019). The major stake holders in this regard are the Ministry of Natural Resource and Rural Development of the federal democratic republic of Ethiopia and the Institute of Agricultural Research of Ethiopia. The productivity of hybrid seed is by far larger than that of

the open pollinated variety released in Ethiopia by the research centres (MARC, 2019). Today there are lots of companies engaged in distribution of improved seed and majority of them are operational in the research area, particularly around Zeway town. The registered and released varieties are indicated s follow;

Table 8 Number of varieties released and registered Onion and Tomato)

Vegetable	Number of varieties released and registered		Total
	Released	Registered	
Tomato	19	22	41
Onion	7	17	24
Total	26	39	65

Source: MARC

According to the above table there are 41 and 24 varieties of Tomato and Onion currently being cultivated by the vegetable growers in all over the country. The registered varieties means hybrid ones introduced from abroad and approved by the relevant authorities while the released varieties are those originated from the research centres and distributed to the growers. The productivity of released varieties has been indicated below.

Table 9 Productivity of the released variety of Onion

Variety	Year of release	Maturity date	Yield (Qt/ha)
Milkam	1997	110-130	400
Nafis	2010	90-100	400
Adama red	1980	110-130	350
Bombe red	1984	110-120	300
Nasik red	2004	90-100	300
Bombe red	1984	110-120	300
Nasik red	2004	90-100	300
Average*			336
Standard deviation*			47.56

Source: MARC, \* own calculation

Table 10 Productivity of the released Tomato varieties

Variety	Year of release	Maturity date	Yield (Qt/ha)
Gelilema	2015	88	500
Miya	2007	90-100	471
Cochoro	2007	85-90	463
Fetan	2005	75-80	454
Melkasalsa	1997	100-110	450
ARP tomato d2	2012	85	435
Melkashola	1997	100-120	430
Chali	2007	85-100	430
Eshet	2005	75-80	394
Metadel	2005	75-90	345
Beshola	2005	85-90	340
Average*			428
Standard deviation*			50.26

Source: MARC, \* own calculation

Table 11 List of vegetable varieties Registered in Ethiopia in Collaboration EIAR-MARC  
(Tomato)

No	Variety	Year of registration	Productivity		Days to mature	Maintainer
			Research field	Farmers field		
1	Shanty PM	2005	609	373	70-75	Green life plc
2	Shanty PM	2012	650	604	75	Axum Green life plc
3	Galila	2003	666	659	75	Green life plc
4	Anna	2003	543	478	75	MEKAMBA PLC
5	Eden	2003	599	485	75	MEKAMBA PLC
6	Barmun	2003	357	286	111	MARKOS PLC
7	Awasa	2007	600-800	400-700	75	MEKAMBA PLC
8	Awash river	2007	500-750	400-700	75	MEKAMBA PLC
9	Topsin	2003	750	550	75	CROP GROW
10	Venis F1	2007	750	550	75	MARKOS PLC
11	Monica	2007	614	574	77	DAWNT PLC
12	Momyanz	2007	602	460	75	SYNGENTA PLC
13	Chibile	2007	500	392	75	SYNGENTA PLC
14	STH-808	2004	514		60-65	Vibiha Seeds Ethiopia plc
15	STH-805	2004	337		65-70	Vibiha Seeds Ethiopia plc
16	Rainbow	2003	436			Era Agrilinc plc
17	Brigad 4C	2003	543	539	75	Axum Green life plc
18	Irma	2001	815	608	75	Axum Green life plc
19	Tesha	2007	638	497	80	SYNGENTA PLC
20	Emerald	2008	768	307	60-65	Joy Tech plc
21	Galilea 39	2010	748		80	Green life plc
22	Shanty 92	2010	756		80	Green life plc
	Mean		601	480	75	

Source; MARC

Table 12 List of vegetable varieties Registered in Ethiopia in Collaboration EIAR-MARC  
(Onion)

No	Variety	Year of registration	Productivity		Days to mature	Maintainer
			Research field	Farmers field		
1	Neptune	2001	320	570	90-105	GREEN LINE TRADING
2	Sivan	2330	636	478	90-105	GREEN LINE TRADING
3	Jamber F1	2330	750	560	90	MEKAMBA PLC
4	Red king	2330	582	556	90-100	MARKOS PLC
5	Russet F1	2005	655	435	80	GREEN LINE TRADING
6	Ada f1	2005	697	425	70	GREEN LINE TRADING
7	Red passion	2003	650	450	80	Bjo seedB, V-Crop Grow PLC
8	Sweet card	2004	251		105	Impact mundial Agri PLC
9	Rosy	2004	372		95-105	Vibiha Seed Ethiopia PLC
10	Carameto	2004	235		105	Impact mundia
11	Sirius	2007	581	469	103	GAWANT PLC
12	Regent	2007	588	440	101	GAWANT PLC
13	Red coach	2007	504	500	107	GAWANT PLC
14	Malbec	2007	561	498	105	GAWANT PLC
15	Rio Bravo	2009	833	549		BTRO
16	Mata Hari	2009	726	458		BTRO
17	Lamda	2009	626	407		BTRO
	Mean		580	400	95	

Source: MARC

**Agrochemicals:** According to the opinions of the producers agro chemicals are the major sources of treats for the loss of production and ultimate bankruptcy. The chemicals are pesticides and fungicides. The producers are using varieties of chemicals to control both pests and diseases. However, since they are not organized and covered by the national input distribution channels they are exposed to collect the chemicals from markets prevailingly dominated by uncertified and illegal traders. Experts from Awash Melkasa Research Centre which in control of the research activities in the rift valley of Ethiopia, say that lack of clear policy and loss control over

the dissemination uncertified agrochemicals coupled with the marginalization of these particular groups of vegetable growers from the national service packages have pushed they opt for the illegal and ill-responsible sources. According to the supply chain map of chemicals depicted in figure 6 agrochemicals are imported through domestic suppliers and distributed under the supervision of ministry of agriculture. The genuine products are exorbitantly expensive and beyond the affording capacity of majority of the producers, including the research targets. This has created market gap which invited the creation of underground market that is dominated with substandard product.

**Fertilizers:** The fertilizer market is a government monopoly market where individual companies are not allowed to trade in. The fertilizer supply map indicated in figure 5 shows that the flow of fertilizer through all the supply chain is under control of both federal and regional governments.

#### **4.1.9 Land use patterns and its effect on production seasonality**

Land is the most critical factor in the production of the crops. According to the response of the producers almost all of them do not possess farm land and they rent from resident farmers for limited time. Traditionally the farm land leasing takes place after the harvesting of cereal crops by the owners of the land and lasts until the beginning of the forth coming sowing season of cereal crops where the owner of the land resume growing house hold consumable products. Therefore the producers have to migrate to other places to continue their business after the handover of the previous land to the owners. This situation, as explained by the producers, creates an interruption of the production and cause seasonal fluctuation of supply. The producers have explained to the researcher that this time around most of the farm lands are becoming to be marginal and non-productive due to continuous and intensive cultivation of similar crop and excessive application of chemicals. The producers are applying what experts call it chemical cocktail. Chemical cocktail means the mixture of different fungicides or pesticides together and apply to the crop. The practice has no any source of recommendation and has caused the immergence of disease and pest resistant varieties. Consequently lots of farm plots are being converted to non-productive areas, as explained by agricultural experts or the research area.

#### **4.1.10 Production cost, Marketing cost, Marketing Margin and Value addition Analysis of Value Chain of Onion and Tomato**

As it was mentioned in the above paragraphs, most of the production and marketing activities of both crops are not only similar but also supportive of each other. The types of infrastructure, labour and inputs requirements are also similar. Should there be differences with the managements of the two crops may lay in the intensity and types of agro-chemicals. The other difference is the frequency of harvesting whereby in the case of Onion harvesting takes place once in a single crop season while in the case of Tomato it may go to four to six times in one cropping season. One producer in the sampled area is practicing both crops in different season or simultaneously in different places, learning from the long standing experiences that growing both crops help as strategy to avert complete bankruptcy of the business that may occur from market failure of either crop. Therefore, it is logical to treat the production cost of both crops with the perspective of sampled producers.

The aim of the research is to assess the value chain of the crops with the perspective of forward integration. The forward integration is expected to focus on the value chain activities starting from product acquisition and includes the marketing operations until the produce reach the ultimate consumers. Hence we at least focus on two main operations; production acquisition and marketing or delivering to its final destination. In this research the product acquisition means the production activity of the producers where they convert raw materials and management practices in to produces, Onion and Tomato. Product deliver or marketing means the activity performed by the brokers, wholesalers and retailers to outreach the produces to the final consumer. The research therefore, distinguishably has taken the two major operations and presented the findings as follows.

#### **4.1.11 Analysis of cost of production**

Here the production cost of Onion and Tomato has been analysed based on the information collected from three producers through standard questionnaire. The number of the producers may seem small. But the information regarding the selling price of produces per unit at the farm gate was similar all over the producers and this would not have relationship with the size of the interviewee. Hence the researcher has decided to limit the number of the interviewee to three

sampled producers of Onion and two producers of Tomato based on the availability of information and cost of data collection. The production cost analysis has been done taking those elements of cost which have one year life time only. Some fixed costs like water pump and accessories, manmade waterholes, motor cycles, etc. were left out of the calculation since all of them are used interchangeably for both crops. The other major problem encountered by the researcher in studying the cost of production of the crop was that all producers do not keep records and considerable number of the producers lend these fixed assets between them in exchange of equivalent resources. Therefore all elements of costs included in the analysis are assumed to be consumed in one production season.

The estimation of production cost gives the beginning value in the value chain of the crop and helps to estimate the marketing margins gained by the producers. The other marketing margins will also have their root on the farm gate price received by the producers. The estimation of the production cost of the crop helps to see the financial situation of the producers in the value chain and why the producers are sticking on running these crops as risk averting strategy.

The production cost analysis of both crops, under this particular research, has been categorized as follows: preparatory operation which include the preparation of seedlings and planting sites; planting operation; maintenance of the vegetables and finally harvesting and packing. Farm inputs like improved seed, agro chemicals, fertilizers, fuel and lubricants, land rentals, machinery rents and direct labour have been included. All costs of inputs have been estimated based on current market prices. All producers told to the researcher that they dispose their produces on the farm site and do not hold any marketing operation. Therefore the production cost analysis includes costs up the harvesting and bagging only. Loading of the produces and other marketing operations including transportation are the sole responsibility of the wholesalers with facilitative role of the brokers. The producers are paid of their produces right on the field or cash transfer through bank deposit under close supervision and confirmation of the brokers. Here the role of the broker is indispensable. The following tables indicate the size of land under cultivation just in the last crop season when the research was conducted, the volume production in quintal obtained, the production cost and gross margin received by the producers of both crops separately in the sampled area.



Table 13 Production cost of Onion of the sampled producers in Qoka kebele, Lume Wereda

Description	Total Production in Qt			Total (6 ha)
	1 ha	1 ha	4 ha	
Product sold (Qt)	204	350	225	779
Product sold (Birr)	153,000	262,500	168,750	584,250
<b>Plant development costs/ha</b>				
Land rent	18,000	20000	24000	62,000
Machinery rent	4,800	8000	2000	14,800
<b>Sub total</b>	<b>22,800</b>	<b>28,000</b>	<b>26,000</b>	<b>76,800</b>
<b>Farm labor</b>				-
Seedling raising	1,800	42000	8000	51,800
Planting	6,000	0	10400	16,400
Weeding	4,200	12000	12000	28,200
Spraying	4,800	4500	6000	15,300
Hoeing	4,800	6000	12000	22,800
Fertilizing	1,200	0	26400	27,600
Fence construction		12000	2000	14,000
<b>Sub total</b>	<b>22,800</b>	<b>76,500</b>	<b>76,800</b>	<b>176,100</b>
<b>Harvesting and processing</b>				-
Uprooting of onion bulb	9,000		7200	16,200
Picking		70000		70,000
Removal of fringes	9,600		12000	21,600
Grading	-	-	-	-
Packing	-	-	-	-
Weighing	-	-	-	-
Loading	-	-	-	-
Others	-	-	-	-
<b>Sub total</b>	<b>18,600.00</b>	<b>70,000.00</b>	<b>19,200.00</b>	<b>107,800.00</b>
Farm inputs				
Farm Material	-	-	-	-
Seed/seedling	24,000	42000	32000	98,000
Fuel	10,000	5000	12000	27,000
Chemical	40,000	30000	40000	110,000
Packing materials	-	-	-	-
Fencing and protection material	-	-	-	-
<b>Sub total</b>	<b>74,000.00</b>	<b>77,000.00</b>	<b>84,000.00</b>	<b>235,000.00</b>
Advisory/supervision	-	-	-	-
Transportation	-	-	-	-
Taxes	-	-	-	-
Municipality expense	-	-	-	-
Guard	3,000	13500	4500	21,000
Others	2,000	0		2,000
<b>Sub total</b>	<b>5,000</b>	<b>13,500</b>	<b>4,500</b>	<b>23,000</b>
Total production cost	143,200	265,000	210,500	618,700
Total production(quint)	204	350	225	779
Production cost per unit(Br/qt)	702	757	936	794
Average Price received/quint	750	750	750	750
Gross margin	9,800	(2,500)	(41,750)	(34,450)

Source: Own calculation

As it has been mentioned previously, the data in the above table were collected through a thorough discussion with the producers. The producers were telling the researchers from their memory not from any book. Majority of the producers could not learn how to keep financial data. All producers said that they don't declare any kind of financial statements to government authorities or Inland Revenue. Therefore they don't have interest to keep financial books. Everything they are telling is coming from their memories. However their memories was fresh and there was not as such deliberate perverted data. Even though there seems to exist significant differences between the producers in terms costs of individual operation the ultimate cost of production per unit across the sampled producers are more or less similar. The total production cost of all the producers is Birr 618,700 and the total volume of production was 779 quintals. Accordingly the unit cost of production per quintal of sampled producers is Birr 794. As it can be seen from the above table only the first producer could get profit while the remaining two producers went bankrupted. Since the main concern of the research was focusing on the price by which the producers have sold their produces the researcher did not go further to verify the data. Nevertheless the prices by which the producers have sold their produces in the study area have been checked by asking other people residing in the locality in addition to the producers themselves. The researcher has confirmed that the information on the farm gate price of Onion was accurate. Hence, the average price received by all producers was Birr 750 per quintal. At the time of the research the producers were complaining that the price of Onion at the farm gate was not rewarding as it does not cover the cost of production and only those producers who had both Onion and Tomato could escape total bankruptcy.

Table 14 Production cost of Tomato of the sampled producers in Quokka kebele, Lume wereda

Description	Production cost		Total (5.5 ha)
	2.5 ha	3 ha	
Product sold (Volume) quint	800	600	1,400
Product sold (Value) Birr	320,000	240,000	560,000
Plant development costs			-
Land rent	24,000	20,000	44,000
Machinery rent	2,400	12,000	14,400
<b>Sub total</b>	<b>26,400</b>	<b>32,000</b>	<b>58,400</b>
<b>Farm labor</b>			-
Seedling raising(Birr)			-
Planting(Birr)	16,000	7,200	23,200
Staking		1,000	18,000
spraying and watering(Birr)	2,400	18,000	20,400
Hoeing(Birr)	7,200	13,200	20,400
Fertilizing(Birr)		3,600	3,600
Fence construction(Birr)			-
<b>Sub total</b>	<b>25,600</b>	<b>60,000</b>	<b>85,600</b>
<b>Harvesting and processing</b>			-
Uprooting of onion bulb(Birr)			
Picking(Birr)	62,400	18,000	80,400
Removal of fringes(Birr)			
Grading(Birr)			-
Packing(Birr)			-
Weighing			-
Loading of produce(Br)			-
Others(Br)			-
<b>Sub total</b>	<b>62,400</b>	<b>18,000</b>	<b>80,400</b>
<b>Consumable Farm Material</b>			-
Seed/seedling(Br)	30,000	36,000	30,000
Fuel(Birr)	3,200	800	4,000
Chemical(Birr)	30,000	20,800	50,800
Packing materials(Br)		-	-
Fencing and protection material(Br)		41,067	41,067
<b>Sub total</b>	<b>63,200</b>	<b>98,667</b>	<b>161,867</b>
			-
Advisory/supervision(Br)			-
Transportation(Br)			-
Taxes(Br)			-
Municipality expense			-
Guard(Br)	24,000	1,500	25,500
Others(Br)	-	2,000	2,000
<b>Sub total</b>	<b>24,000</b>	<b>3,500</b>	<b>27,500</b>
Total production cost	201,600	212,167	413,767
Total average production (qt)	800	600	1,400
Production cost per unit(Br/ qt)	252	354	296

Production cost... cont'd			
Average Price received/ quint	400	400	400
Gross margin	118,400	27,833	146,233
Gross margin per quint	148	46	104

Source: Own calculation

Unlike the case of Onion farming the Tomato producers could gate gross margin of Birr 104 per quintal. During the research time the average farm gate price of on quintal of Tomato was Birr 400. The volume of production of Tomato is almost double to that of Onion. This bulk production of Tomato could contribute to the overall profitability of the business. Look in table13 above.

#### **4.1.12 The Marketing operations of the value chain of Onion and Tomato (VCoOT).**

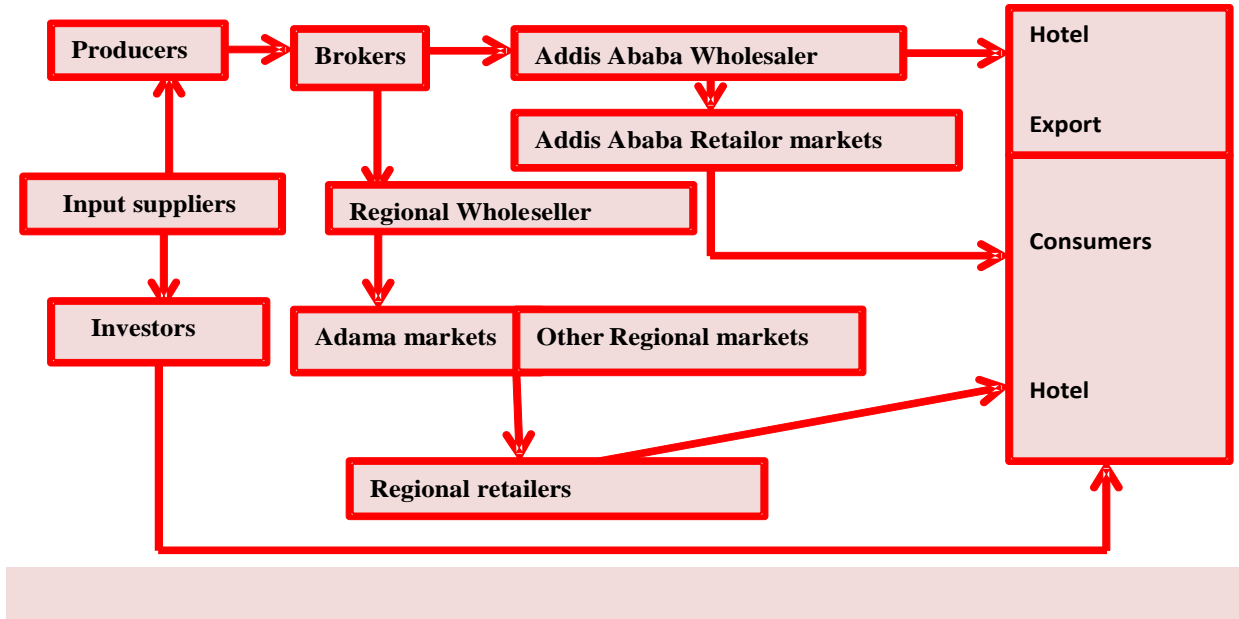
Before we directly go to explaining the marketing operation in the value chain Onion and Tomato, (*VCoOT*) we have to have the basic concept in mind and define the relevant issues in dealing the marketing operation in the (*VCoOT*). Here the basic concept is meeting the customers need and making profit. In this research it has been found that majority of the Onion producers have failed to earn profit while the Tomato growers have got some profit. According to the interviews under gone with key informants and group discussion this is the common characteristics of vegetable growers throughout their life.

In *VCoOT* different actors are involved with distinct role and responsibilities. These actors are interacting with each other to sustain their own objectives. Categorically we can define them as primary actors and support providers. The primary actors are the producers, the brokers, the wholesalers, the retailers and the consumers. The support providers include, inter alia, local government (wereda offices), cooperative agencies, producers' cooperatives, financial institutions, research institutions, local markets of input. Regarding the process of communication and information exchanges there is intensive communication and flow of information both forth and back between the actors involved in the *VCoOT*. Some of the information channels are formal and guided by rules and regulations while some are informal. The formal channels are established and controlled by governmental organizations. Regarding the delivery of produces that is Onion and Tomato the *VCoOT* has accommodated the necessary procedures and channels that facilitate on time delivery of produces ensuring the preservation of

quality and pilferages. Usually marketing activities of VCoOT are more or less similar. In case of Onion marketing activities begins from uprooting the bulb. The producers are approached by the broker since the beginning of the maturity of the bulb. The brokers assess the field of the producers starting from the day of planting and continue until the date of uprooting. The brokers are well experienced in keeping the inventory of productive field and maintain their connection with wholesalers anticipating their continuous business. Therefore, the marketing activities of Onion are uprooting of matured bulbs, removing of fringes from head and tails, collecting and piling of the bulbs, grading, filling in to wooden/plastic crates, weighing, loading, transporting, unloading, storing, distributing. All the sampled producers were using wooden crates to pack and send the produce to the market for main reason of the suitability to avoid product crashes and quality deteriorations. Besides the physical activities there are lots of flow of information regarding price determination, date of collection, means of transportation and related problems, mode of payment, etc. Disputes may arise here due to certain recurrent factors like variation in quality of the produce, shortage of production falling down from the initial agreement, variation in price due to interventions by competitor buyers, sudden fall or hike in demand from the central market, bad road and disagreements with transport owners, etc. In Onion marketing the bulbs are transported as fresh vegetables to the central or main market particularly Addis Ababa, Atikelt tera, in Piazza. It is also sent to other markets like Adama, Dere Dawa, Asela, Jima, Jigjiga, etc. The market extends as far as Tuguchale, Somalia and Djibouti. However, during the conduct of this research all the sampled producers were sending their product to Addis Ababa vegetable market, Atikelt tera in Piazza. These marketing operations are similar with that of Tomato; we will look at it in the understated paragraphs. In Onion marketing the size and colour of the bulb are critical factor for the marketability of the produce. This quality is strictly associated with variety and agronomic management of the Onion field, as explained by the researchers and producers. The following chart indicates the market relationship currently existing among the primary stake holders in VCoOT. In this marketing linkage you can see that there are no cooperative or associations involved. The biggest buyer like Ethiopian Air Line is not indicated like the aforementioned marketing map indicated on figure8. There the sampled producers are totally marginalized by the official authorities due to, among many reasons, a mere fact that the producers do not have land ownership and permanent address. With some government offices they are considered as foreign intruders and cause of eviction of farmers from their lands through tantalizing offerings. This has created, according to some key

informants, troubles and challenges to government authorities in the application of small house rural development packages.

Figure 23 Marketing linkages among the actors in the VCoOT



The above chart, however, shows that the producers under this research are fully involved and are the beginning of the VCoOT. In this particular chart brokers are seen to be the most critical agent creating the marketing linkages. Without the brokers it is highly unlikely that the producers can sell their products. This has been unanimously confirmed by the Onion and Tomato producers. The reasons are more explained in the part dealing with the role of the actors. Onion bulbs are packed in woody crate for transportation as indicated in the picture indicated just below. This is the practice preferred by all producers including the sampled producers. During the research it was not possible to find other ways.



Figure 24 Onion bulb ready for marketing at the producers' site

Marketing of Tomato, like that of Onion is the most crucial segment of operation in Tomato farming business. According to the opinion of the interviewed farmers Tomato is harvested since the emergence of light red colour fruits and goes on until the plant exhausted bearing healthy and well looking fruits. Like the case of Onion Tomato fruits are sold on the field of the producers to the central wholesalers through the brokers. The producers have unanimously told the researcher that the possibility of selling their product without the involvement of brokers is highly unlikely.



Figure 25 Tomato production ready for central market

#### **4.1.13 Analysis of Marketing costs, Revenue, Value Addition and Marketing Margin in the value chain of Onion and Tomato producers**

Marketing cost are those costs incurred during the packaging, transportation, hording and distributing the produce to consumers. In this process of action there will be unforeseen incidences which force the participants of the process to pay some amount of money. These are collectively treated as others. According to the findings of this research, the main actors involved in product marketing activities are the brokers, the wholesalers and the retailers. Other marketing actors may be there but they are not the interest of the research. The producers, according to the evidence obtained from field observation and the opinions gathered from key informants and group discussion, are not involved in any kind of marketing activities. The identification of wholesaler, setting of the price, allocation of transportation to take the produce from the producers' field, sometimes the processing of the produces in the producers field are the responsibilities of the brokers. Here the marketing costs have been estimated for each actor involved in the forward integration aspects of the value chain and presented as follow. The details of the role of the actors can be seen in the part of this paper dealing with the analysis of the role of actors in the value chain operation. The following chart indicates the marketing linkage of the actors involved in the value chain operation of Onion and Tomato of sampled area.

#### **4.1.14 Marketing cost and revenue of the Broker**

The brokers our study area are mainly engaged in the management of market information and connecting the producers with the wholesalers. They expend no sizable finance enough to record and to affect the value chain of both Onion and Tomato. The only financial data to be raised in connection with the broker is the commission they are receiving from the wholesalers per load of lorry usually called ISUZU of 50-60quintals of capacity. This commission expense has been included in the marketing cost analysis of wholesalers in this paper. All brokers operating in the research area and those sampled ones do not have license to undertake their business. The brokers are the most nearest agents to the producers and means of market information channels. All producers unanimously confirmed to the researcher that it is almost impossible to sell their produce without the involvement of the brokers. Brokers do not provide any technical or financial assistance to their clients, the producers. However they are the strongest bondage between the producers and the wholesalers. Brokers serve as living insurance for the transaction



taking place between the wholesalers and the producers. The relationship between the brokers and the producers goes beyond business relationship and transcends to some sorts of social guarantees that neither the producers nor the brokers will simply breakup.

#### **4.1.15 Marketing cost and Revenue of the Wholesaler**

The wholesalers considered in this research are stationed in Addis Ababa, locally called *Atikelt tera*. The wholesalers, unlike the producers and the brokers do have fixed business premises and trading license. But the researcher could not see them producing cash receipt to the retailer and the retailers neither were interested to receiving. The marketing costs of the wholesalers were collected for seven consecutive days and average figures were calculated on daily basis. For example the shop rents expenses of the three wholesalers, included in the survey, for seven consecutive days was summed up and the average was calculated by dividing the total monthly expenses by 30 days. It has been checked during data collection that all wholesalers operate 7 days a week. The total sales of product and all other data have been calculated same. This was done to bring all measurements to same point of reference so that comparison between the actors can be feasible. The following tables indicate the average marketing cost and revenue analysis of the wholesalers and retailer in both crops in seven consecutive days. The analysis was done on total and average basis of the sampled wholesalers and retailers. The average cost and revenue are the most critical variable because they are assumed to represent the performances of the targeted group in the value chain of the crops in the research area. The total revenue was calculated by multiplying the total quantity sold on date by unit selling price of the crop in ETB. The marketing cost includes all costs including the collection of the products from farmers' field to rental charges for ware house. The rental charges of ware house was calculating by decomposing the monthly charge of ware house rent into thirty days and multiplying the result by seven days. All costs do not include depreciation expenses because the book keeping experiences do not exist at all level of the value chain including the producers. Besides the challenges encountered during the interview did not allow the data collectors to go further in to the inspection of accounting or financial history of the interviewee. The results of the analysis are discussed in the next chapter of this paper.

Table 15 Marketing cost and revenue analysis of the wholesalers of Onion

<b>Description</b>	<b>Unit</b>	<b>Quantity</b>		
Net product sold	Qt	400	20 quintals lost	
Selling price	Br /Qt	1,733	Average price	
Total sales ETB	Br	673,750		
<b>Marketing expenses(Onion)</b>				
Description	Unit	Quantity received	Purchase price	Total cost/value
Product purchase	Qt	20	750	315,000
<b>Marketing cost</b>				
Labor	Br			11,800
Transportation	Br			27,500
Weighing	Br			3,250
Shop rent	Br			2,000
Municipality tax	Br			130
Commission paid	Br			12,400
Other taxes	Br			100
Other expenses	Br			3,600
Product lost	Qt			15,000
Total Marketing expense	Br			75,780
Total expenses	Br			390,780
Average marketing Cost per Qt	Br			977
Price spread	Br			983
Gross marketing margin per Qt	Br			537

Source: Own calculation

Table 16 Marketing cost and Revenue analysis of the wholesalers of Tomato

<b>Description</b>	<b>Unit</b>	<b>Quantity</b>	<b>Remark</b>		
Net product sold	Qt	315	5 quintals lost		
Selling price	Birr/qt	833	Average price		
Total sales	Birr	262,500			
<b>Marketing expenses</b>					
Description	Unit	Quantity received	Purchase price	Total cost/value	
Product purchase	Qt	315	400	126,000	
<b>Marketing cost</b>					
Labor	Birr			4,400	
Transportation	Birr			15,500	
Weighing	Birr			600	
Shop rent	Birr			2,633	
Municipality tax	Birr			-	
Commission paid	Birr			15,500	
Other taxes	Birr			-	
Other expenses	Birr			3,200	

## Marketing cost...cont'd

Product lost	Qt	5	400	2,000
Total Marketing expense	Birr			43,833
Average Marketing cost/Qt	Birr			139
Total expenses	Birr			169,833
Gross marketing margin per Qt	Birr			433

Source: Own calculation

Table 17 Marketing cost and revenue analysis of retailers of Onion

Description	Unit	Quantity	Remark	
Net product sold	Qt	350	5 quintals lost	
Selling price	Br/qt	2,000	Average price	
Total sales	Br	700,000		
<b>Marketing expenses(Onion)</b>				
Description	Unit	Quantity received	Purchase price	Total cost/value
Product purchase	Qt	355	1,733.33	615,333
Marketing cost				
Labor	Birr			186
Transportation	Birr			103
Weighing	Birr			-
Shop rent	Birr			104
Municipality tax	Birr			-
Commission paid	Birr			-
Other taxes	Birr			-
Other expenses	Birr			180
Product lost	Birr			573
Total Marketing expense				1,146
Average Marketing cost/Qt	Birr			3
Total expenses				616,479
Gross marketing margin per Qt	Birr			267

Source: Own calculation

Table 18 Marketing cost and Revenue analysis of the Retailer of Tomato

<b>Description</b>	<b>Unit</b>	<b>Quantity</b>	<b>Remark</b>		
<b>Net product sold</b>	Qt	280	10 quintals lost		
<b>Selling price</b>	Birr/qt	1,671	Average price		
<b>Total sales</b>	Birr	468,000			
<b>Marketing expenses(Onion)</b>					
<b>Description</b>	<b>Unit</b>	<b>Quantity received</b>	<b>Purchase price</b>	<b>Total cost/value</b>	
Product purchase	Qt	290	1,343	389,429	
Marketing cost					
Labor		Br		1,520	
Transportation		Br		840	
Weighing		Br		-	
Shop rent		Br		858	
Municipality tax		Br		-	
Commission paid		Br		-	
Other taxes		Br		-	
Other expenses		Br		1,260	
Product lost		Br		4,478	
Total Marketing expense		Br		8,957	
Average Marketing cost/Qt		Br		31	
Total expenses		Br		398,386	
Gross marketing margin per Qt		Br		328	

Source: Own calculation

#### 4.1.16 Analysis of Marketing Margin in the value chain of Onion and Tomato

The marketing margin indicates the difference between the revenue and cost of transaction. Herein this research the marketing margin focuses the difference between the unit sales values and costs that the actors obtained and incurred in the value chain of Onion and Tomato. The units of measurement are ETB per quintal. The marketing margin was analysed for each actor involved in the value chain of both crops. In case of the producers the initial cost of produce the production was taken as the initial value of the produce. Since the marketing cost of the producers was assumed to be zero the marketing margin of the producers was calculated by deducting the production cost at the farm gate from the sales price at which the wholesalers paid to the producers. In case of wholesalers and retailers the marketing margin was calculated simply

as the difference between the selling price and cost of procurement per unit. Finally the distribution of the margin between the actors has been indicated as percentage of the total margin saved in the whole value chain. The gross market margin was calculated as the variation between the consumer price which the retailers sold and the unit cost of production made by the producers. Details can be seen as follow.

Table 19 Summary of average net marketing margin obtained per unit of Onion

Participant	Average Purchase price(production cost) (Br)	Average Selling price (Br/Qt)	Gross margin	Total marketing cost	Average Marketing Cost(Br/Qt)	Net Market margin (Br/Qt)	MM Percent market margin	Net Profit as %
W/seller	750.00	1,733.00	983.00	75,780.00	189.45	793.55	0.57	75.08%
Retailer	1,733.33	2,000.00	266.67	616,479	3.23	263.44	0.13	24.92%
Producers	794.22	750.00	0	0	-	0	0	0.00%
Total			1,249.67	692,259.00	192.68	1,056.99		100.00%

Source: Own calculation

Table 20 Average net marketing margin obtained per unit of Tomato

Participant	Average Purchase price(production cost) (Br)	Average Selling price (Br/Qt)	Gross margin	Total marketing cost	Average Marketing Cost(Br/Qt)	Net Market margin (Br/Qt)	MM Percent market margin	Net Profit as %
W/sellers	400.00	833.00	433.00	169,833.00	139.15	293.85	0.52	42%
Retailer	1,343.00	1,671.00	328.00	8,957.00	30.89	297.11	0.20	43%
Producers	296.00	400.00	104.00	-	-	104.00	0.26	15%
Total			865.00	178,790.00	170	694.96		100%

Source: Own calculation

Table 21 Gross margins received per unit of production at different level of VCoOT before marketing expenses (Onion)

<b>Participants</b>	<b>Cost/purchase price</b>	<b>Selling price</b>	<b>Gross margin received</b>	<b>%</b>
Farm gate price/cost per unit	794.00	750.00	0	38%
Wholesaler(WS)	750.00	1,733.00	983.00	81.51%
Retailer	1,733.00	2,000.00	267.00	22.14%
Total/Average			1,206.00	100.00%

Source: own calculation

Table 22 Gross margin received per unit of production at different level of VCoOT before marketing expenses (Tomato)

<b>Participants</b>	<b>Cost/purchase price</b>	<b>Selling price</b>	<b>Gross margin</b>	<b>%</b>
Producers	296	400	104	24%
Wholesalers	400	833	433	50%
Retailers	1343	1671	328	38%
Total/average	680	968	865	100%

Source; Own calculation

Table 23 Summary of average gross margin per unit

<b>Actors</b>	<b>Onion</b>	<b>Tomato</b>	<b>%</b>	
			<b>Onion</b>	<b>Tomato</b>
Producers	(44.00)	104.00	-4%	12%
WS	983.00	433.00	82%	50%
Retailers	267.00	328.00	22%	38%
Total	1,206.00	865.00	100%	100%

Source: The above tables

Table 24 Summary of average net margin per unit

<b>Actors</b>	<b>Onion</b>	<b>Tomato</b>	<b>%</b>	
			<b>Onion</b>	<b>Tomato</b>
Producers	-44	104	-5%	21%
WS	640	155	77%	31%
Retailers	239	248	29%	49%
Total	835	507	100%	100%

Source: The above tables

Table 25 Summary of Estimation of Marketing Margin (%)

<b>Tools</b>	<b>Formula</b>	<b>Vegetables</b>	
		<b>Onion</b>	<b>Tomato</b>
Margin received by wholesaler	$\text{GMM}_{cw} = \frac{\text{TGM}_{cw}}{\text{TGMM}}$	73%	31%
Margin received by retailer	$\text{GMM}_{cw} = \frac{\text{TGM}_r}{\text{TGMM}}$	33%	49%
Gross marketing margin received by the producers	$\text{GMM}_p = 100\% - \text{TGMM}$	-6%	20%

Source: The above tables

Where; TGMM, total gross marketing margin,  $\text{GMM}_{cw}$ ; total gross marketing margin received by central wholesalers,  $\text{GMM}_r$ ; total gross marketing margin received by retailers,  $\text{GMM}_p$ ; portion of the price paid by end consumer that belongs to the farmer as a producer. (Addisu Hailu, Lemma Zemedu and et al., 2016.)

#### 4.1.17 Value Addition in the value chain of Onion and Tomato producers

The value added along the value chain of both Onion and Tomato has been calculated based on average prices of unit produce. The value added is presented for both crops separately to indicate the comparative performances of both crops. In this research the Onion producers were loser and have made negative contribution to the value chain. As it has been mentioned earlier the brokers have no financial contribution in the value chain and it was not possible to indicate the value added by the brokers in the value chain of both Onion and Tomato. According to the findings of the research the total valued added per Qt of Onion throughout the value chain is Birr 1271.43. Out of this total value addition, 81 percent was made by the wholesalers. The producers' contribution was -2 percent indicating that the producers were net losers in the value chain. In the case of Tomato value chain the share of the wholesaler was 21 percent while that of retailers and producers were 49&21 percent, respectively. This situation indicates that if a single producer sticks to mono crop production style he will have no means to alleviate the plight of financial losses to be impacted due to one of the failure. The researcher has witnessed this situation during

field visiting and from focus group discussion. The details of value addition in the value chain of both crops can be seen in the following table.

Table 26 Value added along the value chain of Onion (SP-PC)

<b>Description</b>	<b>SP</b>	<b>PC</b>	<b>Added value</b>	<b>A VA/TVA</b>
Producer	750	779	(29)	-2%
Broker	-	-	-	0%
Wholesaler	1,733	750	983	81%
Retailer	2,000	1,733	267	22%
Total added value	4,483	3,262	1,221	100%

Source: Own calculation

Table 27 Value added along the value chain of Tomato, (SP-PC)

<b>Description</b>	<b>SP</b>	<b>PC</b>	<b>Added value</b>	<b>A VA/TVA</b>
Producer	400	296	104	21%
Broker	-	-	-	0%
Wholesaler	833	678	155	31%
Retailer	1,671	1,423	249	49%
Total added value	2,905	2,397	508	100%

Source: Own calculation

## 4.2 Major obstacles and expectations

One of the themes of this research was to inspect the type and extent of the problems or obstacles being encountered by the actors mainly the primary actors involved in the VCoOT. The anticipated problems were enumerated and organized in a form of questionnaire and selected producers, brokers, wholesalers and retailers were interviewed. The findings were summarized and presented in tables. The findings were categorized and interpreted based on the category they belong to. The category or classification of the measurement has been designed by the researcher based on intellectual intelligence and intuition. Hence those problems rated by the respondents from 90% to 100% were ranked first while those rated below 70% as grade four or the list ones. The following table shows the detail of the rating.



Table 28 Measuring standard of the level significance of the problems

<b>Range</b>	<b>Rank</b>
90% - 100%	1
80% - 89%	2
70% - 79%	3
< 70%	4

Source: Own calculation

#### 4.2.1.1 Identification of the major problems and ratings by the actors in the VCoOT

The researcher has conducted preliminary assessment on the type of problems which would be encountered by different actors from the producers up to the retailers. The problems were listed at random distribution to avoid predisposition of ideas. Each problem was rated from 1 to 5 on Likert scale and asked to the actors to freely rank them according to the level of severity and magnitude of impact they do have on the VCoOT with respect to the experiences of the sampled actors involved. The problems encountered by the actors then ranked from one to four based on the ranges designed by the researcher. The ranges were designed just based on the intuition of the researcher and this kind of rating is common in the working environment of the researcher. The result of the survey and the ranking was calculated and presented in the tables shown below.

Table 29 Major problems encountered by the producers and their level of severity

<b>Type of the problem</b>	<b>Total</b>	<b>%</b>	<b>Rank</b>	<b>Rank</b>
Lack of market for the production	25	100%	....	1
Lack of storage facility	25	100%	...	
Lack of improved seed	24	96%	...	
Prevalence of plant disease	23	92%		
Difficulties of setting selling price	23	92%		
Lack of farm land	22	88%		2
Lack of production inputs	21	84%		
Lack of trust with the buyers	21	84%		
Lack of grading facility	21	84%		
Lack of packing materials	21	84%		
Expensiveness of inputs	20	80%		
Lack of financial assistance	20	80%		

### Major problems... Cont'd

Distance of the market place from the production site	18	72%		
Lack of modern technology	13	52%		3
Interference of middle agents	13	52%		
Lack of Transportation facility	13	52%	...	
High cost of Transportation	12	48%	...	4
Shortage of labor	11	44%		
Shortage of labor	11	44%		
Delay in payment and sale proceeds	11	44%		
Political instability/Ethnic conflict	9	36%		
Corruption of local state authority	2	8%		

Source: Own calculation

Table 30 Major problems of the brokers

Type of the problem	Total	%		
Broker market is too congested	10	67%		7%
Lack of storage facility	10	67%		7%
Too much price fluctuation	9	60%		6%
Lack of financial assistance/credit facilities	9	60%		6%
High cost of Transportation	9	60%		6%
Lack of transportation facility	8	53%		6%
Seasonal fluctuation of product supply	8	53%		6%
Difficulties of setting selling price	8	53%		6%
Delay in payment and sale proceeds	7	47%		5%
Inconsistency of qualities	7	47%		5%
High rent charges	7	47%		5%
Low sale absorption capacity of market	6	40%		4%
Lack of trust with the suppliers	6	40%		4%
Corruption of local state authority	6	40%		4%
Absence of grading facility	5	33%		4%
High tax payment	5	33%		4%
High license and other market fee	5	33%		4%
Lack of market information	4	27%		3%
Political instability/Ethnic conflict	4	27%		3%
Interference of government bodies	3	20%		2%
Lack of packing materials	3	20%		2%

Source: Own calculation

Table 31 Major Problems encountered by the wholesaler

<b>Type of the problem</b>	<b>Total</b>	<b>%</b>	<b>Rank</b>	<b>Rank</b>
Lack of packing materials	12	80%	....	2
Lack of trust with the suppliers	11	73%	....	3
Inconsistency of qualities	11	73%		
High license and other market fee	11	73%		
Wholesale market is too congested	10	67%		4
Too much price fluctuation	10	67%		
Lack of market information	10	67%		
Interference of government bodies	10	67%		
High tax payment	10	67%		
Difficulties of setting selling price	10	67%		
Lack of transportation facility	9	60%		
High cost of Transportation	9	60%		
Lack of storage facility	8	53%		
Delay in payment and sale proceeds	8	53%		
Corruption of local state authority	8	53%		
Absence of grading facility	8	53%		
Seasonal fluctuation of product supply	7	47%		
Lack of financial assistance/credit facilities	7	47%		
High rent charges	7	47%		
Low sale absorption capacity of market	5	33%	....	
Political instability/Ethnic conflict	4	27%	....	

Table 32 Major Problems encountered by the retailers

<b>Type of the problem</b>	<b>Total</b>	<b>%</b>	<b>Rank</b>	<b>Rank</b>
High cost of Transportation	23	92%	...	1
Lack of financial assistance/credit facilities	23	92%	...	
Lack of Transportation facility	20	80%		2
Lack of trust with the suppliers	21	84%		
Lack of market information	20	80%		
Seasonal fluctuation of product supply	20	80%		
Price fluctuation (wide and low)	19	76%		
Lack of transportation facility	18	72%		
Procurement problems	17	68%		3
Difficulties of setting selling price	17	68%		
Lack of packing materials	17	68%		
Lack of storage facility	17	68%		
Delay in payment and sale proceeds	15	60%		

Major Problems...cont'd

Absence of grading facilities	14	56%	
More physical loss of produce / storage loss	14	56%	
Non-availability of suitable weighing facilities	13	52%	
Timely supply	12	48%	4
Failing in assessment of demand	11	44%	
Political instability/Ethnic conflict	11	44%	
Corruption of local state authority	11	44%	
Inadequate physical facilities	10	40%	...
Absence of storage facility	10	40%	...

Source: Own calculation

Table 33 Major Problems faced by the consumer

Type of the problem	Total	%	Rank
Very high prices	25	100%	1
Lack of market information/price/Price fluctuation (wide and low)	23	92%	2
Lack of trust with the market	20	80%	
Lack of transportation facility	19	76%	
No proper packing by the retailer	18	72%	
Seasonal fluctuation of product availability	16	64%	3
Non-availability of suitable weighing facilities	14	56%	
No facility for feed back	13	52%	
No timely availability of produce	12	48%	4
Absence of grading facilities	12	48%	
Unhygienic condition	12	48%	
No proper store design and visual merchandising	12	48%	
Short shelf time of products	11	44%	
Unsatisfactory responses and services rendered at retail outlet	10	40%	
Quality of product is unsatisfactory	9	36%	...
Inconvenience / not nearness of the retail outlets	8	32%	...

Source: Own calculation

**The challenges of the VCoOT**

Like what has been done with the problems encountered by the actors involved in the value chain here in the case of identifying the challenges as a whole of the value chain were primarily designed in discussion with experienced persons and based on the reference materials obtained

for internet sources. The types of the challenges and their explanatory factors were measured using Likert scale. Each challenge was measured in terms of its incidences, magnitude and level of impacts. The concepts of these explanatory variables were explained to the key informants selected from relevant government offices and research institutes. It was deliberate that the key informants were selected from high level of professionals including PhD holder, MSc and BSc in field of agriculture and business. They have been well oriented on the concepts and meaning of the challenges, the incidences and impacts. According to the purpose of this research challenges means the underlying problems or issues faced by all stakeholders in the value chain and impacting all of them in one or other way. The challenges are the problems which concern all actors and require global approaches in the governance of the value chain so that the value chain will transform from one point to another. The variable incidence was used to explain how frequently it occurs across the board of the value chain while the magnitude means the level of coverage and its significances as it is estimated by the key informants putting themselves on behalf of the targeted actors involved in this particular value chain under the research. The impact of the challenges means the scope of the ramification of the underlying problem or its consequences beyond each cluster or segment of actors of the value chain or within each segment of the actors. That means what are the effects in each group of the actors involved grouped as producers, wholesalers, etc. and its effects between the each group of the chain while operating in the value chain. For a matter of convenience the result of the research was presented at two level. The first level indicates the level of incidence, magnitude and impacts of each selected challenge. The second one tried to indicate how the key informants measure each variable independently. Each variable was given ranking from one to five which means if one variable is given five it means hundred per cent while if it is levelled as one the score will be twenty per cent. This analysis was desired to articulate the recommendation of the research particularly referring to the policy aspects. Details are stated below.

Table 34 The challenges in the VCoOT of the sampled area

Main Challenges	Level of incidence	Level of magnitude	Level of impact
Lack of quality standardization	73%	76%	82%
Lack of clear and appropriate policy	75%	79%	81%
Lack of infrastructure	76%	81%	80%
Lack of improved seed	68%	80%	80%
Input supply	77%	77%	80%
Technology	77%	75%	80%
Lack of market information	74%	82%	75%
Climate changes	77%	74%	75%
Lack of extension services	60%	67%	75%
Access to irrigation land	65%	67%	48%

Source: Own calculation

Table 35 The level of incidence of the challenge of the VCoOT expressed by the key informants

Main Challenges	Level of incidence
Input supply	77%
Technology	77%
Climate changes	77%
Lack of infrastructure	76%
Lack of clear and appropriate policy	75%
Lack of market information	74%
Lack of quality standardization	73%
Lack of improved seed	68%
Access to irrigation land	65%
Lack of extension services	60%

Source: Own calculation

Table 36 The level of *MAGNITUDE* of each challenge of the VCoOT as expressed by the key informants

Main Challenges	Level of magnitude
Lack of market information	82%
Lack of infrastructure	81%
Lack of improved seed	80%
Lack of clear and appropriate policy	79%
Input supply	77%
Lack of quality standardization	76%
Technology	75%
Climate changes	74%
Access to irrigation land	67%
Lack of extension services	67%

Source: Own calculation

Table 37 The level of *IMPACTS* of each challenge of the VCoOT as expressed by the key informants

Main Challenges	Level of impact
Lack of quality standardization	82%
Lack of clear and appropriate policy	81%
Lack of infrastructure	80%
Lack of improved seed	80%
Input supply	80%
Technology	80%
Lack of market information	75%
Climate changes	75%
Lack of extension services	75%
Access to irrigation land	48%

Source: Own calculation

## 4.2.2 Marketing operations and costs of Onion and Tomato in the research area

### 4.2.2.1 Marketing operations

The marketing operations in this particular value chain start at the producers' field as the responsibility of the producers culminate after uprooting of Onion bulb and Tomato fruits. The next steps including the preparation of the vegetables as indicated in the production activities packing, weighing, transporting, loading and unloading, storing etc., are the responsibilities of the intermediaries.

### 4.2.2.2 Marketing costs

Marketing costs are the costs incurred to cover the marketing operation stated above. All marketing costs go to the intermediaries as the producers are not responsible of it, according to the response of the producers and the information of the KI. According to the finding of this research the average marketing cost of the wholesalers and the retailers of Onion were Birr 1,093 and Birr 1761 respectively while that of Tomato were Birr 678 and 1,423 respectively. In here the marketing costs of both crops with the retailers are a little bit higher than the wholesalers indicating that the retailers care more than the wholesalers. This fact leads to an increments to the consumer price which has been the biggest complain of the consumers interviewed in this research.

### 4.2.2.3 Marketing margin

Marketing margin is the difference between the selling price and procurement cost of per unit of production. The reason why per unit of measurement was selected is that as the sample has focused on few but representative respondents of the marketing actor the figures are not indicative of the total volume and value of the vegetables in the market. Therefore by analysing the marketing margin based on single unit of production will avoid biasness in the estimation process. In this research the marketing margin was presented as Gross average and net average marketing margin. Gross marketing margin is the margin before the marketing cost while the net average marketing margin is the marketing margin after the marketing cost per unit of production. Calculating the marketing margin will help us to understand the share and level of influence of each actor possessing in the value chain.

According to table the gross margin calculated on unit price and unit cost basis indicates that the producers have suffers loss of Birr 44 per quintal of onion while could get Birr 104 per quintal of Tomato. These sampled producers have again suffered the same and got same in terms of net marketing margin. The wholesalers of Onion and Tomato have got Birr 983 and Birr 433 of gross margin per quintal of Onion and Tomato respectively and Birr 640 and Birr 155 of net market margin of the same order. The retailers have obtained Birr 267 and Birr 328 as gross margin of Onion and Tomato respectively while their net market margin was Birr 239 and Birr 248 in same order. Generally speaking the value chain is less favourable to the producers and highly favourable to the intermediaries particularly the wholesalers. The situations with the brokers was very difficult to calculate based on empirical data as they totally avoid any kind of data related to their financial gain. However, according to the information from KI and themselves, they were getting Birr 3000 per load of the product without consideration of the volume and the value of the load. Usually the weight of each load of Onion or Tomato is not less than fifty or sixty quintal. Therefore the broker will never encounter financial loss in the transaction of the value chain.

As indicated in the above table the most vulnerable actors are the producers. The producers were net loser in case of Onion value chain while they are the least earner in Tomato value chain in terms of both gross margin and net margin per unit of production. The retailers have shown largest net margin in case of Tomato value chain. The perishability of Tomato is much higher



than Onion. There is more care for Tomato than Onion with all actors but much care is there with the retailers.

#### **4.2.3 Value addition in the value chain**

The value addition of this particular value chain was calculated based on the selling price of the products as they pass through each stage or actor of the value chain. Accordingly the data gathered through the structured questionnaire indicate that whole sales in the value chain of tomato possess 81% of the value addition in Onion value chain while they do 31% in value chain of Tomato. The retailers account 22% and 39% of the value addition in Onion and Tomato respectively. The details can be seen in table62 and 27.

#### **4.2.4 Major problems encountered by the sampled actors of the value chain**

The major problems to be encountered were first stipulated based on literatures and discussion with knowledgeable individuals and tested for sensitivity with sampled actors from each category. Upon approval of the discussion the data have been collected and analysed. Accordingly the producers have mentioned five major problems as their priority one and two. These are lack of product storage facilities, improved seed, prevalence of plant diseases, difficulties in setting of selling price, and lack of farm land. As Aman Rikitu (2015) stated in his research on value chain of Tomato, the main challenge facing tomato producers in T/Kutaye is improved seeds, market opportunity, market fluctuation, post-harvest, producers unable to set the price and production seasonality. Seasonality is more evident in perishable crops such as fruits and vegetables which allow for a small time lag between harvest and usage (Aman Rikitu, 2015)

In case of the wholesalers lack of packing material, lack of trust with their suppliers (the brokers), and inconsistency of the quality of the products are the top three major trouble, as per the responses of the wholesalers. The retailers said that high cost of transportation, lack of financial support and transportation facilities are the three top problems they are facing in this value chain. Lastly the consumers' major problems were identified to be very high price of Onion and Tomato, lack of market information and fluctuation of prices. The researcher feels that these problems mentioned by each category of actors of the value chain do really tell the reality of the situations.

#### **4.2.5 The challenges of the value chain in of Onion and Tomato**

The value chain under this particular research has got lots of challenges collectively encountered by the actors involved in the whole value chain governance. The challenges were measured in terms of their level of incidence, magnitude and impacts as stated earlier. In terms of the challenges the respondents raised lack of product standardization; lack of clear and appropriate policy and lack of infrastructure are the three top challenges of the overall value chain. The challenges associated with input supply, production technologies and climate changes are the top problems that visit the actors of the value chain more frequently than other. Lack of market information, lack of infrastructure and lack of improved seed were considered, by the respondents, as factors affecting majority of the value chain actors while lack of quality standardization, lack of clear and appropriate policy, lack of infrastructures and improved seed have wider effects within the segment and among the segments of the value chain actors.

## **CHAPTER FIVE: CONCLUSION AND RECOMMENDATION**

### **5.1 Conclusion**

The research has focused on the forward integration part of the value chain. However for the completeness of the analysis the production cost of the producers was estimated and the farm gate price was calculated accordingly. The other important tools of value chain analysis are market mapping and this has been done following the steps to develop the market mapping for the products under the research. According to the market mapping there are four categories of value chains dealing with supply of inputs and distribution of products. The market mapping can be categorized in to two groups. The first group contains those market networks designed by the policy makers and mainly meant to avoid or reduce the influences of middle men. In this group of market networking almost the entire targeted group under this research are either excluded or not fairly considered as partner for over all competitiveness of the market system. The role of the targeted elements were indicated in the second market mapping category were all traditional participants of the value chain were included. All of the supporting agents understand the use of value chain but most of them are politically motivated to assist only the small holding farmers who are embraced in the rural development packages. The production of both crops simultaneously in one season or alternatively between two production seasons is considered by the primary producers as survival strategies to withstand the fallouts of unprecedented market and product losses. The determination of market price of onion and tomato were under the privileges of the wholesalers as they are in control of market information mainly the level of demand and supply of the products. The primary producers and end consumers are the most vulnerable partners of the value chain under this research while the wholesalers and the retailers are relatively comfortable actors. The producers included in this research are small scale producers operating in the value chain for the last many years and are one of the major suppliers of vegetable production to the central market and other peripheral markets. These kinds of producers are found in vast part of the country undertaking similar farm business and sustain significant volume unemployment. They are the beginning of capital accumulation towards large scale farming and improvement agricultural technologies. However these producers are knowingly or unknowingly excluded from national rural development strategies and market networking. Their contributions to the domestic supply of fresh vegetables is not studied and

estimated as to what share of market they possess. Lack of ownership to the land they are cultivated propelled them to excessively exploit the land and miss operate the application of drugs and agrochemicals. This has enhanced the degradation of soil fertility and the prevalence of vegetable diseases forcing many producers to constantly translocation of their business from place to place in search of better areas. The research centres do not have special packages regarding these producers and the producers have never ever used any of the varieties released by the domestic research centres. The exponential rises in the price of agro chemicals and supply of adulterated and/or segregated “improved” seeds are the major challenges standing off their competitiveness. Therefore the following recommendations have been put forward to remove these stumbling blocks;

Lack of market information on demand and supply of the products, climatic variation and competition for the survival among the primary producers have been raised as the causes of seasonal fluctuation of the products. The irregularity in vegetable marketing, absence of quality standardization, lack of proper input supply, lack of market and physical infrastructures, lack of proper and clear policy to regulate the value chain were the major challenges, enter-alia, of the value chain of onion and tomato under this research. The relationship between the research centre and the producers is almost non-existent.

## **5.2 Recommendation**

This research has tried to look in to functioning of the value chain of onion and tomato in the study area and identified certain issues which require crafting and implementing relevant policies particularly relevant to the production and marketing of vegetables. The research has identified the absence of appropriate policy designed to enhance the proper functioning of the value chain under consideration. Particularly business licensing and control of product quality are highly neglected. The relationship between the research Centre and the producers is in total absent. Acquisition of land and utilization of natural resources is unregulated and uncontrolled. This has led to excessive utilization land and unscientific application of chemicals. The marketing aspect is also unregulated and the distribution of market margins is quite unfair. The involvement of supporting institutions is very minimal while the influence input dealers is significantly impacting the competitiveness of the value chain. The availability of improved seed and certified

agro chemicals is crucial factors for sustainable operation of the value chain. Hence based on these findings the following policy issues have been recommended.

- There should be a paradigm shift with the support providing agencies regarding the importance of including the commercial vegetable growers in the value chain and it has to be main streamed as permanent structure in all government offices particularly in those dealing with development and marketing of agricultural products.
- Business licensing and product quality control is essentially required to enhance the competitiveness of the value chain and save guarding the wellness of the ultimate consumers.
- The role of the Melkasa Agricultural Research Centre has to redesigned and realigned in such a way to provide practical assistances to the commercial vegetable growers operating in its command area.
- Appropriate land policies have to be designed so that the commercial vegetable growers who are included in this particular research and those in similar situations can have access to land and the utilization vegetable land should be regulated to ensure sustainable vegetable production and increase the productivity lands
- The production of improved seed and it proper distribution is a mega issue being raised by the producers, the intermediaries and the research centers. Therefore there must be an immediate commitment of the federal and regional governments to alleviate such bottle necks of the vegetable business by installing domestic capacity in the production of hybrid variety and essential agrochemicals.
- The expensiveness of agrochemicals and technological inputs is leading large numbers of vegetable producers to quit the business. Therefore the production of essential agrochemicals and farm technologies must be the prior concern of both the federal and regional governments.
- Effective social dialogue forums for vegetable producers, intermediaries and support providing institutions must be organized.
- Those institutions and agents which are responsible to market development and consumers' welfares must be strengthened and capacitated through awareness creation and provision of all essential facilities.

### **5.3 Future Research**

Usually value chain analysis takes place taking one crop or product or service at a time. This research was conducted by taking two crops at the same time. Therefore it shall instigates other research to be conducted based on two or multiple crops based on their strategic connection in their production and marketing system.

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## Appendix 1 Statistical data

Area, Production and Yield Of Crops For Private Peasant Holdings for Meher season 2013/2014 E.C.

Crop	Number Holders	Area in Hectares	Distribution %	Production in Quintals	Distribution %	Yield(QT/HA)
<b>VEGETABLE</b>						
<i>Lettuce.</i>	42,103	239.88	0.15%	0	0.00%	-
<i>Head Cabbage.</i>	424,084	3,961.84	2.45%	270,188.32	3.74%	68.20
<i>Ethiopian Cabbage.</i>	3,556,645	34,503.80	21.37%	3,603,271.60	49.90%	104.43
<i>Tomatoes.</i>	241,355	7,257.45	4.49%	393,730.22	5.45%	54.25
<i>Green peppers.</i>	1,134,545	6,167.47	3.82%	412,503.57	5.71%	66.88
<i>Red peppers.</i>	1,956,999	109,050.25	67.53%	2,541,883.97	35.20%	23.31
<i>Swiss chard.</i>	86,408	307.23	0.19%	0	0.00%	-
<i>S/total</i>	7,442,139	161,487.92	0	7,221,577.68	100.00%	44.72
<b>ROOT CROP</b>						
<i>Beetroot</i>	374,001	1,643.15	1%	140,749.38	0.5%	85.66
<i>Carrot.</i>	133,556	1,602.46	1%	67,120.34	0.2%	41.89
<i>Onion..</i>	773,807	24,375.70	15%	2,197,352.67	7.6%	90.15
<i>Potatoes.</i>	1,437,697.006	6,745.61	4%	7,849,934.00	27.3%	1,163.71
<i>Yam/'Boye'</i>	249,721	3,075.62	2%	0	0.0%	-
<i>Garlic.</i>	2,667,163	16,411.19	10%	1,590,935.75	5.5%	96.94
<i>Taro/'Godere'</i>	1,534,451	42,656.73	25%	11,935,383.02	41.5%	279.80
<i>Sweet potatoes.</i>	1,531,127	71,507.13	43%	4,991,837.63	17.3%	69.81
<i>S/total</i>	7,263,826	168,017.59	100%	28,773,312.79	100.0%	171.25

Cont. Area, Production and Yield Of Crops

Area, Production and Yield Of Crops For Private Peasant Holdings for Meher season 2014/2015 E.C.

Crop	Number Holders	Area in Hectares	Distribution %	Production in Quintals	Distribution	Yield (QT/HA)
<b>VEGETABLE</b>						
<i>Lettuce.</i>	3 2,279	114.14	0.05%		0.00%	
<i>Head Cabbage.</i>	364,315	4,541.48	2.09%	-	0.53%	-
<i>Ethiopian Cabbage.</i>	3,421,976	31,385.65	14.47%	3,267,608.99	5.98%	104.11
<i>Tomatoes.</i>	2 20,506	5,026.68	2.32%	306,999.50	0.56%	61.07
<i>Green peppers.</i>	1,039,383	5,889.02	2.71%	367,926.32	0.67%	62.48
<i>Red peppers.</i>	1,691,480	92,455.73	42.61%	1,707,656.64	3.13%	18.47
<i>Swiss chard.</i>	9 9,917.00	304.47	0.14%		0.00%	
<i>S/total</i>		216,971.05	100.00%	-	100.00%	-
	5,903,835			54,615,540.2		251.72
<b>ROOT CROP</b>						
<i>Beetroot</i>	3 33,072	1,949.77	0.9	182,079.42	100	93.39
<i>Carrot.</i>	1 59,136	3,697.27	1.71	142,970.14	0.33	38.67
<i>Onion..</i>	705,877	22,771.88	10.52	2,307,451.89	0.26	101.35
<i>Potatoes.</i>	1,288,146	67,361.87	31.13	9,218,320.70	4.23	136.85
<i>Yam/'Boye'</i>	3 14,237.00	3,717.39	1.71			
<i>Garlic.</i>	1,768,487	9,257.81	4.28	934,868.73		100.98
<i>Taro/'Godere'</i>	1,700,269	48,817.41	22.41	14,488,345.2	1.71	297.81
<i>Sweet potatoes.</i>	1,729,229	59,397.64	27.33	27,015,989.9	26.47	456.56
<i>S/total</i>				7		

Cont. Area, Production and Yield Of Crops For Private Peasant Holdings for Meher season 2015/2016 E.C.

Crop	Number Holders	Area in Hectares	Distribution %	Production in Quintals	Distribution %	Yield (QT/HA)
<b>VEGETABLE</b>						
<i>Lettuce.</i>	41,434	207.7	0.10%	1,450.65	0.00%	6.98
<i>Head</i>	507,162	7,197.70	3.37%	463,177.16	1.16%	64.35
<i>Cabbage.</i>						
<i>Ethiopian Cabbage.</i>	3,675,492	33,942.01	15.88%	3,296,960.05	8.25%	97.14
<i>Tomatoes.</i>	304,825	9,524.42	4.46%	591,563.36	1.48%	62.11
<i>Green</i>	1,373,282	7,449.59	3.48%	458,536.96	1.15%	61.55
<i>peppers.</i>						
<i>Red peppers.</i>	2,372,266	142,795.16	66.80%	2,627,908.26	6.57%	18.40
<i>Swiss chard.</i>	95,308	215.56	0.10%	4,871.95	0.01%	22.60
<i>S/total</i>	5,991,644	213,766.65	100.00%	39,985,663.02	100.00%	187.05
<b>ROOT CROP</b>						
<i>Beetroot</i>	443,145	3,364.72	2%	301,898.70	1%	89.72
<i>Carrot.</i>	177,774	3,823.41	2%	167,513.76	0%	43.81
<i>Onion..</i>	790,807	29,517.01	14%	2,648,493.54	7%	89.73
<i>Potatoes.</i>	1,379,115	70,131.32	33%	9,432,334.43	24%	134.50
<i>Yam/'Boye'</i>	447,475	5,521.65	3%	522,502.19	1%	94.63
<i>Garlic.</i>	1,526,476	11,845.53	6%	1,077,434.57	3%	90.96
<i>Taro/'Godere'</i>	1,939,892	48,523.71	23%	12,112,217.60	30%	249.61
<i>Sweet</i>	1,476,002	41,039.31	19%	13,723,268.22	34%	334.39
<i>potatoes.</i>						
<i>S/total</i>	8,180,686	213,766.66	100%	39,985,663.01	100%	187.05

Cont. Area, Production and Yield Of Crops For Private Peasant Holdings for Meher season 2016/2017 E.C.

Crop	Number Holders	Area in Hectares	Distribution %	Production in Quintals	Distribution %	Yield (QT/HA)
<b>VEGETABLE</b>						
<i>Lettuce.</i>	47,210	117.14	0.05%	759.55	0.00%	6.48
<i>Head</i>	466,680	6,188.56	2.70%	386,814.48	0.84%	62.50
<i>Cabbage.</i>						
<i>Ethiopian</i>	4,130,65	36,090.31	15.75%	3,528,964.26	7.62%	97.78
<i>Cabbage.</i>	5					
<i>Tomatoes.</i>	322,918	6,298.63	2.75%	283,648.27	0.61%	45.03
<i>Green</i>	1,825,20	9,832.28	4.29%	617,943.29	1.33%	62.85
<i>peppers.</i>	4					
<i>Red peppers.</i>	2,980,37	180,701.4	78.88%	3,298,042.90	7.12%	18.25
	8	6				
<i>Swiss chard.</i>	136,583	381.37	0.17%	10,076.00	0.02%	26.42
<i>S/total</i>	6,830,97	229,079.3	100.00%	46,305,689.75	100.00%	202.14
	5	4			%	
<b>ROOT CROP</b>						
<i>Beetroot</i>	449,579	2,886.07		253,503.34	0.55%	87.84
			0.013			
<i>Carrot.</i>	168,252	2,578.13		90,339.27	0.20%	35.04
			0.011			
<i>Onion..</i>	862,937	33,603.39		3,274,752.45	7.07%	97.45
			0.147			
<i>Potatoes.</i>	1,197,01	66,923.33		9,214,031.85	19.90%	137.68
	8		0.292			
<i>Yam/'Boye'</i>	440,025	5,603.38		509,643.44	1.10%	90.95
			0.024			
<i>Garlic.</i>	1,920,90	15,381.01		1,386,643.07	2.99%	90.15
	1		0.067			
<i>Taro/'Godere'</i>	2,250,91	48,087.35		12,179,164.45	26.30%	253.27
	2		0.210			
<i>Sweet</i>	1,911,16	54,016.67		19,397,611.90	41.89%	359.10
<i>potatoes.</i>	1		0.236			
<i>S/total</i>	9,200,78	229,079.3		46,305,689.77	100.00%	202.14
	5	3	1.000		%	

Area, Production and Yield Of Crops For Private Peasant Holdings for Meher season 2017/2018 E.C.

Crop	Number Holders	Area in Hectares	Distribution%	Production in Quintals	Distribution	Yield(QT/HA)
<b>VEGETABLE</b>						
<i>Lettuce.</i>	38,622	145.19	0.07%	1,529.96	0.02%	10.54
<i>Head</i>	533,067	6,006.97	2.88%	365,129.00	4.94%	60.78
<i>Cabbage.</i>						
<i>Ethiopian Cabbage.</i>	3,315,410	34,127.53	16.37%	3,449,918.26	46.67%	101.09
<i>Tomatoes.</i>	270,577	5,235.19	2.51%	277,745.38	3.76%	53.05
<i>Green peppers.</i>	1,659,364	10,207.26	4.90%	632,404.53	8.56%	61.96
<i>Red peppers.</i>	2,297,063	152,752.94	73.27%	2,647,225.30	35.81%	17.33
<i>Swiss chard.</i>	116,102	0.00	0.00%	17,592.41	0.24%	-
<i>S/total</i>	8,230,205	208,475.08	100.00%	7,391,544.84	100.00%	35.46
<b>ROOT CROP</b>						
<i>Beetroot</i>	492,937	2,890.07	1.24%	256,385.13	1.39%	88.71
<i>Carrot.</i>	204,439	4,902.90	2.10%	173,334.27	0.94%	35.35
<i>Onion</i>	880,638	31,673.21	13.58%	2,938,875.85	15.90%	92.79
<i>Potatoes.</i>	1,127,467	69,610.81	29.84%	9,689,696.44	52.42%	139.20
<i>Yam/'Boye'</i>	343,589	5,356.14	2.30%	487,404.77	2.64%	91.00
<i>Garlic.</i>	2,255,598	19,412.49	8.32%	1,782,218.93	9.64%	91.81
<i>Taro/'Godere'</i>	1,855,532	45,995.28	19.72%	11,797,769.33	63.83%	256.50
<i>Sweet potatoes.</i>	1,404,043	53,449.23	22.91%	18,484,137.40	100.00%	345.83
<i>S/total</i>	8,564,243	233,290.13	100.00%	45,609,822.12	2.47	1,141.18



Area, Production and Yield Of Crops For Private Peasant Holdings for Meher season 2018/2019 E.C.

Crop	Number Holders	Area in Hectares	Distribution %	Production in Quintals	Distribution %	Yield(QT/HA)
<b>VEGETABLE</b>						
<i>Lettuce.</i>	41,963	244.92	0.10%	2,163.35	0.02%	8.83
<i>Head Cabbage.</i>	439,049	5,170.52	2.14%	314,837.53	3.54%	60.89
<i>Ethiopian Cabbage.</i>	3,479,524	48,457.96	20.09%	4,630,489.60	52.07%	95.56
<i>Tomatoes</i>	195,984	4,322.31	1.79%	235,837.51	2.65%	54.56
<i>Green peppers.</i>	1,206,321	10,473.07	4.34%	622,475.59	7.00%	59.44
<i>Red peppers.</i>	2,055,964	172,142.19	71.37%	3,074,571.09	34.57%	17.86
<i>Swiss chard.</i>	121,138	380.42	0.16%	12,794.47	0.14%	33.63
<i>S/total</i>	7,539,943	241,191	100.00%	8,893,169.14	100.00%	36.87
<b>ROOT CROP</b>						
<i>Beetroot</i>	408,052	3,831.61	1.65%	315,778.41	0.70%	82.41
<i>Carrot.</i>	186,937	2,556.05	1.10%	101,482.29	0.22%	39.70
<i>Onion..</i>	675,624	28,185.11	12.17%	2,624,782.85	5.79%	93.13
<i>Potatoes.</i>	1,256,696	73,677.64	31.82%	10,444,363.59	23.03%	141.76
<i>Yam/'Boye'</i>	319,953	4,101.39	1.77%	369,007.97	0.81%	89.97
<i>Garlic.</i>	1,953,748	21,754.49	9.40%	1,957,400.45	4.32%	89.98
<i>Taro/'Goder'</i>	1,931,839	56,065.32	24.21%	14,633,644.48	32.26%	261.01
<i>Sweet potatoes.</i>	1,294,969	41,380.35	17.87%	14,911,089.33	32.87%	360.34
<i>S/total</i>	8,027,818	231,551.96	100.00%	45,357,549.37	100.00%	195.88

Source: CSA2019

**Table 37 Size of house holders, production area, production and productivity of vegetables at national level**

<b>Tomato</b>								
<b>Production year</b>	<b>Number Holders</b>	<b>Area in Hectares</b>	<b>Distribution %</b>	<b>Production in Quintals</b>	<b>Distribution %</b>	<b>Yield (QT/HA)</b>	<b>% of house hold consumption</b>	<b>% sold</b>
<b>2013/14</b>	241,355	7,257.45	4.49%	393,730.22	5.45%	54.25	55.59	40.73
<b>2014/15</b>	2 20,506	5026.68	2.32%	306999.5	0.56%	61.07	61.06	36.48
<b>2015/16</b>	304,825	9,524.42	4.46%	591,563.36	1.48%	62.11	63.63	33.92
<b>2016/17</b>	322,918	6,298.63	2.75%	283,648.27	0.61%	45.03	80.79	32.78
<b>2017/18</b>	880,638	31,673.21	13.58%	2,938,875.85	15.90%	92.79	71.73	25.77
<b>2018/19</b>	195,984	4,322	1.79%	235,838	2.65%	54.56		
<b>Average</b>	389,144	10,684	4.90%	791775.785	4.44%	61.64	66.56	33.936
<b>Onion</b>								
<b>Production year</b>	<b>Number Holders</b>	<b>Area in Hectares</b>	<b>Distribution %</b>	<b>Production in Quintals</b>	<b>Distribution %</b>	<b>Yield (QT/HA)</b>	<b>% of consumption</b>	
							<b>Tomato</b>	<b>Onion</b>
<b>2013/14</b>	773,807	24,375.70	14.51%	2,197,353	7.64%	90.15	58.15	35.02
<b>2014/15</b>	2 20,506	5,026.68	2.32%	307,000	0.56%	61.07	54.99	37.52
<b>2015/16</b>	790,807	29,517.01	13.81%	2,648,494	6.62%	89.73	55.06	38.57
<b>2016/17</b>	862,937	33,603.39	14.67%	3,274,752	7.07%	97.45	56.34	39.03
<b>2017/18</b>	880,638	31,673.21	13.58%	2,938,876	15.90%	92.79	62.59	33.25
<b>2018/19</b>	675,624	28,185	12.17%	2,624,783	5.79%	93	60.50	36.07
<b>Average</b>	796,763	25,396.85	11.84%	2,331,876.14	7.26%	87.39	57.94	36.58

Source: CSA, 2019

Table 38 Percentage utilized

<b>Crop</b>	Total Production (Quintals)	<b>VEGETABLE</b>					
		Percent Utilized For					
		Household Consumption	Seed	Sale	Wages In kind	Animal Feed	Others
<b>Tomatoes.</b>	404,260.65	61.24	1.01	35.78	0.17	-	1.81
<b>Onion..</b>	1,693,168.08	51.43	7.78	39.46	0.15	-	1.19
<b>S/total</b>							

Source: adapted from the above table.

**Appendix 2 Structured questions for quantitative data (Producers)**

No : \_\_\_\_\_

Date \_\_\_\_\_

**PRODUCERS**

Name of the respondent:

Age \_\_\_\_\_ sex \_\_\_\_\_

Education:

Place of production:

Size of farm: \_\_\_\_ ha.

Name the vegetables grown:

How long you have been in the business: \_\_\_\_\_ Year

To whom you sell vegetables:

Disposal of the produce to different agencies

Disposal of the produce to different;

Date	Vegetable Qty sold (qt)		To whom you sold		Price received (per qt)		Total amount		Commission	
	Onion	Tomato	Onion	Tomato	Onion	Tomato	Onion	Tomato	Onion	Tomato
1										
2										
3										
4										
5										
6										
7										

Where there sales agreement to particular buyer? Yes      No.

If yes

Date	Vegetable Qty agreed upon to deliver (qt)		Agreement entered with		Qty Delivered		Price agreed upon to deliver (per qt)		Estimated Total value		Product lost (Kg)		Who determined the price	
	Onion	Tomato	Onion	Tomato	Onion	Tomato	Onion	Tomato	Onion	Tomato	Onion	Tomato	Onion	Tomato
1														
2														
3														
4														
5														
6														
7														

WS= Wholesaler; R= Retailer; B=Broker; SM=super market

**Transportation and Marketing cost (Birr)**

Date	Types of transportation		Qty transported (qt)		Distance Covered(Km)		Total cost							
							Labour		Transportation		Commission paid		Others	
1	Onion	Tomato	Onion	Tomato	Onion	Tomato	Onion	Tomato	Onion	Tomato	Onion	Tomato	Onion	Tomato
2														
3														
4														
5														
6														
7														

**Any other cost incurred in selling the produce**

Item of cost	Amount (per qt)		Quantity sold		Total charge		Remarks
	Onion	Tomato	Onion	Tomato	Onion	Tomato	
Labor charges for cleaning at farm level							
Loading and unloading							
Weighing charges							
Commission charges							
Other, specify							
i.							
ii.							
iii.							

**Reason for the sale of produce at a particular agency i.e., where you sell**

Reason	Wholesalers		Broker		Retailer		Super market	
	Onion	Tomato	Onion	Tomato	Onion	Tomato	Onion	Tomato
Provide credit facility								
Proximity								
Less number of middle men								
Trust in								

measurement								
Less charges for the service								
Less physical loss								
Provision for technical guidance								
Provision of storage and transport facility								
Payment on spot								
Remunerative price								
Others, specify								
i								
ii								
iii								
iv								

Problems faced by the farmer during marketing date, list the top three them in front of the date.

<b>Date</b>	<b>Onion</b>	<b>Tomato</b>



### Major Problems faced by the farmers

Type of the problem	Scale				
	1	2	3	4	5
Lack of farm land					
Lack of production inputs					
Expensiveness of inputs					
Lack of improved seed					
Prevalence of plant disease					
Shortage of labor					
Lack of modern technology					
Lack of market for the production					
Distance of the market place from the production site					
Interference of middle agents					
Lack of Transportation facility					
High cost of Transportation					
Lack of market information					
Lack of trust with the buyers					
Lack of grading facility					
Difficulties of setting selling price					
Lack of packing materials					
Lack of storage facility					
Lack of financial assistance					
Delay in payment and sale proceeds					
Political instability/Ethnic conflict					
Corruption of local state authority					
Other specify					
i					
ii					
iii					

**Estimated cost of production (Birr)**

Description		Onion	Tomato	Remark
Size of farm in ha.				
Production cost	Land rent			
	Machinery rent			
	Labour			
	Seed			
	Fuel			
	Chemical			
	Plastic and wood			
	Packing materials			
	Guard			
	Others			
	Total			
Total production(Qnt)				
Production cost per unit(Birr/Kg)				

Expectations of the farmer in interview days

- i. \_\_\_\_\_  
\_\_\_\_\_
- ii. \_\_\_\_\_  
\_\_\_\_\_
- iii. \_\_\_\_\_  
\_\_\_\_\_
- iv. \_\_\_\_\_  
\_\_\_\_\_
- v. \_\_\_\_\_  
\_\_\_\_\_

### Appendix3 Structured questions for quantitative data (Broker)

No : \_\_\_\_\_

Date \_\_\_\_\_

#### **BROCKER**

Code of the respondent: \_\_\_\_\_

Age \_\_\_\_\_ sex \_\_\_\_\_

Education:

Place of business:

Investment made in business

Owned funds \_\_\_\_\_

Borrowed funds \_\_\_\_\_

Vegetables handled: \_\_\_\_\_

How long you have been in the business: \_\_\_\_\_ Year

From whom you collect the vegetables: Brokers \_\_\_\_\_, farmers \_\_\_\_\_, own farm, \_\_\_\_\_, Farmer trader

What facilities do you provide to the producer who brings his produce for sale

Sl.No.	Particulars	Yes/ No	Qty	Price	Total value
1.	Advisory roles				
2.	<ul style="list-style-type: none"> <li>The time of planting</li> </ul>				
3.	<ul style="list-style-type: none"> <li>Varieties to be planted</li> </ul>				
4.	Extending physical facilities				
5.	<ul style="list-style-type: none"> <li>Supplying the pesticides</li> </ul>				
6.	<ul style="list-style-type: none"> <li>Supplying the seeds</li> </ul>				
7.	<ul style="list-style-type: none"> <li>Supplying the fertilizers</li> </ul>				
8.	<ul style="list-style-type: none"> <li>Supplying the credit/loan/</li> </ul>				
9.	<ul style="list-style-type: none"> <li>Procuring at the farmer door steps /</li> </ul>				
10.	<ul style="list-style-type: none"> <li>Provides the transport facility</li> </ul>				
11.	Physical functions				
12.	<ul style="list-style-type: none"> <li>Grading of the produce</li> </ul>				
13.	Assembling activities/ cleaning, grading activities				
14.	<ul style="list-style-type: none"> <li>Packing activities</li> </ul>				
15.	<ul style="list-style-type: none"> <li>Storage activities</li> </ul>				
16.	Credit facilities				

17.	Others				
18.	I				
19.	Ii				
20.	Iii				
21.	iv				

Where there buying agreement with a particular farmer/ supplier?

Yes  No.

If yes

Date	Qty agreed up on to receive (qt)		Qty received (Qt)		Price agreed up on to receive (per qtl)		Estimated Total value to receive		Product lost after receiving (Kg)		Who determined the price	
	Onion	Tomato	Onion	Tomato	Onion	Tomato	Onion	Tomato	Onion	Tomato	Onion	Tomato
1												
2												
3												
4												
5												
6												
7												

*WS= Wholesaler; R= Retailer; B=Broker; SM=super market*

Do you grade the vegetables?  
 If yes, what is the basis for it?  
 Freshness \_\_\_\_\_

Yes / No \_\_\_\_\_  
 Size \_\_\_\_\_, Colour \_\_\_\_\_,

**Reason for Product lost after receiving**

Date	Reason	Quantity lost (Qt)		Remark
		Onion	Tomato	
1.	Size			
	Colour			
	Freshness			
2.	Size			
	Colour			
	Freshness			
3.	Size			
	Colour			
	Freshness			
4.	Size			
	Colour			
	Freshness			
5.	Size			
	Colour			
	Freshness			
6.	Size			
	Colour			
	Freshness			
7.	Size			
	Colour			
	Freshness			

**Transportation and Marketing cost (Birr) for Onion**

Date	Types of transportation	Qty transported (qt)	Distance Covered (Km)	Total cost (Birr)							
				Labor	Transportation	Weighing charges	Shop rent	Municipality charge	Commission paid	Taxes paid	Others
1											
2											
3											
4											
5											
6											
7											

**Transportation and Marketing cost (Birr) for Tomato**

Date	Types of transportation	Qty transported (qt)	Distance Covered (Km)	Total cost (Birr)							
				Labor	Transportation	Weighing charges	Shop rent	Municipality charge	Commission paid	Taxes paid	Others
1											
2											
3											
4											
5											
6											
7											

**Reasons for buying of the produce from a particular farmer (Onion) (Three top reasons)**

<b>Date</b>	<b>From whom you bought</b>	<b>Quantity (Qt)</b>	<b>Reasons</b>		
1.					
2.					
3.					
4.					
5.					
6.					
7.					

**Reasons for buying of the produce from a particular farmer Tomato (Three top reasons)**

<b>Date</b>	<b>From whom you bought</b>	<b>Quantity (Qt)</b>	<b>Reasons</b>		
1.					
2.					
3.					
4.					
5.					
6.					
7.					

**Sales of produce in each transaction date**

Date	Vegetable	Qty Sold (Qt)	To whom produce Was sold	Price at Which it wassold	Total value ofThe product sold	Remark
1.	Onion					
	Tomato					
2.	Onion					
	Tomato					
3.	Onion					
	Tomato					
4.	Onion					
	Tomato					
5.	Onion					
	Tomato					
6.	Onion					
	Tomato					
7.	Onion					
	Tomato					

Physical loss in different activity

i. **Assembling and transportation**

ate	Onion			Tomato			emark
	ty	of waste	alue	ty	of waste	alue	
1.							
2.							
3.							
4.							
5.							
6.							
7.							



ii. Sales or delivery

Date	Onion			Tomato			Remark
	Quantity	of waste	Value	Quantity	of waste	Value	
1.							
2.							
3.							
4.							
5.							
6.							
7.							

Problems faced by the wholesaler during marketing date, list the top three of them in front of the date.

Date	Onion	Tomato
1		
2		
3		
4		
5		
6		
7		

**Major Problems faced by the wholesaler (Put X sign)**

Type of the problem	Scale				
	1	2	3	4	5
Wholesale market is too congested					
High rent charges					
Lack of transportation facility					
Absence of grading facility					
Low sale absorption capacity of market					
Too much price fluctuation					
High tax payment					
High license and other market fee					
Inconsistency of qualities					
Interference of government bodies					
Lack of Transportation facility					
High cost of Transportation					
Lack of market information					
Lack of trust with the suppliers					
Seasonal fluctuation of product supply					
Difficulties of setting selling price					
Lack of packing materials					
Lack of storage facility					
Lack of financial assistance/credit facilities					
Delay in payment and sale proceeds					
Political instability/Ethnic conflict					
Corruption of local state authority					
Other specify					
i					
ii					
iii					
iv					

**Estimated cost of production (Birr)**

Description		Onion	Tomato	Remark
Size of farm in ha.				
Production cost	Land rent			
	Machinery rent			
	Labour			
	Seed			
	Fuel			
	Chemical			
	Plastic and wood			
	Packing materials			
	Guard			
	Others			
	Total			
Total production(Qnt)				
Production cost per unit(Birr/Kg)				

Expectations of the farmer in interview days

- i. \_\_\_\_\_  
\_\_\_\_\_
- ii. \_\_\_\_\_  
\_\_\_\_\_
- iii. \_\_\_\_\_  
\_\_\_\_\_
- iv. \_\_\_\_\_  
\_\_\_\_\_
- v. \_\_\_\_\_  
\_\_\_\_\_

**Appendix 4 Structured questions for quantitative data (Wholesaler)**

No : \_\_\_\_\_

Date \_\_\_\_\_

**WHOLESALER**

Code of the respondent: \_\_\_\_\_

Age \_\_\_\_\_ sex \_\_\_\_\_

Education:

Place of business:

Type of ownership

Investment made in business

- Owned funds \_\_\_\_\_
- Borrowed funds \_\_\_\_\_

Vegetables handled:

- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

How long you have been in the business: \_\_\_\_\_ Year

From whom you collect the vegetables: Brokers \_\_\_\_\_, farmers \_\_\_\_\_, own farm, \_\_\_\_\_, Farmer trader

What facilities do you provide to the producer who brings his produce for sale

Sl.No.	Particulars	Yes/ No	Qty	Price	Total value
1.	Advisory roles				
2.	The time of planting				
3.	Varieties to be planted				
4.	Extending physical facilities				
5.	Supplying the pesticides				
6.	Supplying the seeds				
7.	Supplying the fertilizers				
8.	Supplying the credit				

9.	Procuring at the farmer door steps /				
10.	Provides the transport facility				
11.	Physical functions				
12.	Grading of the produce				
13.	Assembling activities/ cleaning, grading activities				
14.	Packing activities				
15.	Storage activities				
16.	Credit facilities				
17.	Others, specify				
18.	i				
19.	ii				
20.	lii				
21.	iv				

Where there buying agreement with a particular farmer? YesNo.

If yes

Date	Qty agreed up on to receive (qtls)		Qty received (Qnt)		Price agreed up on to receive (per qtl)		Estimated Total value to receive		Product lost after receiving (Kg)		Who determined the price	
	Onion	Tomato	Onion	Tomato	Onion	Tomato	Onion	Tomato	Onion	Tomato	Onion	Tomato
1												
2												
3												

4												
5												
6												
7												

*WS= Wholesaler; R= Retailer; B=Broker; SM=super market*

Do you grade the vegetables?      Yes    No

If yes, what is the basis for it? Size\_\_\_\_, Colour\_\_\_\_, Freshness \_\_\_\_\_

**Reason for Product lost after receiving**

Date	Reason	Quantity lost (Qt)		Remark
		Onion	Tomato	
<b>1.</b>	Size			
	Colour			
	Freshness			
<b>2.</b>	Size			
	Colour			
	Freshness			
<b>3.</b>	Size			
	Colour			
	Freshness			
<b>4.</b>	Size			
	Colour			
	Freshness			
<b>5.</b>	Size			
	Colour			
	Freshness			
<b>6.</b>	Size			
	Colour			
	Freshness			
<b>7.</b>	Size			
	Colour			

**Transportation and Marketing cost (Birr) for Onion**

Date	Types of transportation	Qty transported (qt)	Distance Covered (Km)	Total cost (Birr)							
				Labour	Transportation	Weighing charges	Shop rent	Municipality charge	Commission paid	Taxes paid	Others
1											
2											
3											
4											
5											
6											
7											

**Transportation and Marketing cost (Birr) for Tomato**

Date	Types of transportation	Qty transported (qt)	Distance Covered(Km)	Total cost (Birr)							
				Labour	Transportation	Weighing charges	Shop rent	Municipality charge	Commission paid	Taxes paid	Others
1											
2											
3											



4											
5											
6											
7											

**Reasons for buying of the produce from a particular farmer (Onion) (Three top reasons)**

Date	From whom you bought	Quantity (Qt)	Reasons		
1.					
2.					
3.					
4.					
5.					
6.					
7.					

**Reasons for buying of the produce from a particular farmer Tomato (Three top reasons)**

Date	From whom you bought	Quantity (Qt)	Reasons		
1.					
2.					
3.					
4.					
5.					
6.					
7.					

**Sales of produce in each transaction date**

<b>Date</b>	<b>Vegetable</b>	<b>Qty Sold (Qt)</b>	<b>To whom produce Was sold</b>	<b>Price at Which it was sold</b>	<b>Total value of The product sold</b>	<b>Remark</b>
1.	Onion					
	Tomato					
2.	Onion					
	Tomato					
3.	Onion					
	Tomato					
4.	Onion					
	Tomato					
5.	Onion					
	Tomato					
6.	Onion					
	Tomato					
7.	Onion					
	Tomato					

**Problems faced by the wholesaler during marketing date, list the top three of them in front of the date.**

<b>Date</b>	<b>Onion</b>	<b>Tomato</b>

**Major Problems faced by the wholesaler (Put X sign)**

Type of the problem	Scale				
	1	2	3	4	5
Wholesale market is too congested					
High rent charges					
Lack of transportation facility					
Absence of grading facility					
Low sale absorption capacity of market					
Too much price fluctuation					
High tax payment					
High license and other market fee					
Inconsistency of qualities					
Interference of government bodies					
Lack of Transportation facility					
High cost of Transportation					
Lack of market information					
Lack of trust with the suppliers					
Seasonal fluctuation of product supply					
Difficulties of setting selling price					
Lack of packing materials					
Lack of storage facility					
Lack of financial assistance/credit facilities					
Delay in payment and sale proceeds					
Political instability/Ethnic conflict					
Corruption of local state authority					
Other specify					
i					

ii					
iii					
iv					

Expectations of the farmer in interview days

vi. \_\_\_\_\_

\_\_\_\_\_

vii. \_\_\_\_\_

\_\_\_\_\_

viii. \_\_\_\_\_

\_\_\_\_\_

ix. \_\_\_\_\_

\_\_\_\_\_

x. \_\_\_\_\_

\_\_\_\_\_

**Appendix 5 Structured questions for quantitative data (Retailers)**

No : \_\_\_\_\_

Date \_\_\_\_\_

**RETAILOR**

Code of the respondent: \_\_\_\_\_

Age \_\_\_\_\_ sex \_\_\_\_\_

Education: \_\_\_\_\_

Place of business: \_\_\_\_\_

Ownership of the business: Sole proprietor / Partnership

If owned average rent for the same in that area \_\_\_\_\_ Birr

If leased: Birr \_\_\_\_\_ per year

Investment made in business

• Owned funds \_\_\_\_\_

• Borrowed funds \_\_\_\_\_

Vegetables handled according to their importance (by volume or value):

• 1<sup>st</sup> \_\_\_\_\_

• 2<sup>nd</sup> \_\_\_\_\_

• 3<sup>rd</sup> \_\_\_\_\_

How long you have been in the business: \_\_\_\_\_ Year

What facilities you do have?

• Rent \_\_\_\_\_ Electricity \_\_\_\_\_ cold shelf \_\_\_\_\_ Others

\_\_\_\_\_

From whom you collect the vegetables: Brokers \_\_\_\_\_, farmers \_\_\_\_\_, own farm,

\_\_\_\_\_, Farmer trader

Employment pattern

Description	Sex	Number	Salary / month
Family	Male		
	Female		
Hired	Male		
	Female		

Do you grade vegetables?      Yes    No

If yes, basis of grading;                      Size\_\_\_\_, Colour\_\_\_\_, Freshness \_\_\_\_\_

Do you provide any facilities to the producer who brings his produce for sale?

Sl. No.	Particulars	Yes/No	Qty	Price	Totalvalue
i	Advisory roles				
	The time of planting				
	Varieties to be planted				
ii	Extending the physical facilities				
	Supplying the seeds				
	Supplying the pesticides				
	Supplying the fertilizers				
	Procuring at the farmer door steps / provides the transport facility				
	Are they are grading at farmer level or by trader				
	Quantity procured is any fixed quantity				

	procurement/ any amount				
	Time of delivery of produce and place of delivery of produce				
iii	Physical functions				
	Assembling activities / cleaning, grading activities				
	Packing activities				
	Storage activities				
iii	Credit facilities				
iv	Retailing activities				
v	Other specify				
	i.				
	ii.				
	iii				

Where there buying agreement with a particular farmer/ supplier? Yes No.

If yes

Date	Qty agreed up on to receive (qt)	Qty received (Qt)	Price agreed up on to receive (per qt)	Estimated Total value to receive	Product lost after receiving (Kg)	Who determined the price
1						
2						
3						
4						
5						
6						
7						

WS= Wholesaler; R= Retailer; B=Broker; SM=super market

Do you grade the vegetables?

Yes No



If yes, what is the basis for it?

Size\_\_\_\_, Colour\_\_\_\_, Freshness \_\_\_\_\_

**Reason for Product lost after receiving**

Date	Reason	Quantity lost (Qt)		Remark
		Onion	Tomato	
1.	Size			
	Colour			
	Freshness			
2.	Size			
	Colour			
	Freshness			
3.	Size			
	Colour			
	Freshness			
4.	Size			
	Colour			
	Freshness			
5.	Size			
	Colour			
	Freshness			
6.	Size			
	Colour			
	Freshness			
7.	Size			
	Colour			

**Vegetable purchase (Onion)**

Date	Collected from	Qty purchased (kg)	Price unit Per kg	Totalvalue	Remark
1.					
2.					
3.					
4.					
5.					
6.					
7.					

Vegetable purchase (Tomato)

<b>Date</b>	<b>Collected from</b>	<b>Qty purchased (kg)</b>	<b>Price unit Per kg</b>	<b>Totalvalue</b>	<b>Remark</b>
1.					
2.					
3.					
4.					
5.					
6.					
7.					

Vegetable sold (Onion)

<b>Date</b>	<b>Collected from</b>	<b>Qty sold (kg)</b>	<b>Price unit Per kg</b>	<b>Totalvalue</b>	<b>Remark</b>
1.					
2.					
3.					
4.					
5.					
6.					
7.					

Vegetable sold (Onion)

<b>Date</b>	<b>Collected from</b>	<b>Qty sold (kg)</b>	<b>Price unit Per kg</b>	<b>Total value</b>	<b>Remark</b>
1.					
2.					
3.					
4.					
5.					
6.					
7.					

**Transportation and Marketing cost (Birr) for Onion**

Date	Types of transportation	Qty transported (qt)	Distance Covered (Km)	Total cost (Birr)							
				Labour	Transportation	Weighing charges	Shop rent	Municipality charge	Commission paid	Taxes paid	Others
1											
2											
3											
4											
5											
6											
7											

**Transportation and Marketing cost (Birr) for Tomato**

Date	Types of transportation	Qty transported (qt)	Distance Covered(Km)	Total cost (Birr)							
				Labour	Transportation	Weighing charges	Shop rent	Municipality charge	Commission paid	Taxes paid	Others
1											
2											
3											
4											
5											
6											

**Reasons for buying of the produce from a particular supplier (Onion) (Three top reasons)**

<b>Date</b>	<b>From whom you bought</b>	<b>Quantity (Qt)</b>	<b>Reasons</b>		
1.					
2.					
3.					
4.					
5.					
6.					
7.					

**Reasons for buying of the produce from a particular supplier Tomato (Three top reasons)**

<b>Date</b>	<b>From whom you bought</b>	<b>Quantity (Qt)</b>	<b>Reasons</b>		
1.					
2.					
3.					
4.					
5.					
6.					
7.					

**Sales of produce in each transaction date**

<b>Date</b>	<b>Vegetable</b>	<b>Qty Sold (Qt)</b>	<b>To whom produce Was sold</b>	<b>Price at Which it was sold</b>	<b>Total value of The product sold</b>	<b>Remark</b>
1.	Onion					
	Tomato					
2.	Onion					
	Tomato					
3.	Onion					
	Tomato					
4.	Onion					
	Tomato					
5.	Onion					
	Tomato					
6.	Onion					
	Tomato					
7.	Onion					
	Tomato					

**Physical loss in different activity**

**iii. Assembling and transportation**

<b>Date</b>	<b>Onion</b>			<b>Tomato</b>			<b>emark</b>
	<b>Qty</b>	<b>% of waste</b>	<b>Value</b>	<b>Qty</b>	<b>% of waste</b>	<b>Value</b>	
1.							
2.							
3.							
4.							
5.							
6.							
7.							

**iv. Sales or delivery**

Date	Onion			Tomato			Remark
	Qty	% of waste	Value	Qty	% of waste	Value	
1.							
2.							
3.							
4.							
5.							
6.							
7.							

**Problems faced by the retailer during marketing date, list the top three of them in front of the date.**

Date	Onion	Tomato
1		
2		
3		
4		
5		
6		
7		

**Major Problems faced by the retailer ( X sign)**

Type of the problem	Scale				
	1	2	3	4	5
Inadequate physical facilities					
Absence of grading facilities					
Absence of storage facility					
Lack of transportation facility					
Price fluctuation (wide and low)					
Non-availability of suitable weighing facilities					
Failing in assessment of demand					
Procurement problems					
More physical loss of produce / storage loss					
Timely supply					
Lack of Transportation facility					
High cost of Transportation					
Lack of market information					
Lack of trust with the suppliers					
Seasonal fluctuation of product supply					
Difficulties of setting selling price					
Lack of packing materials					
Lack of storage facility					
Lack of financial assistance/credit facilities					
Delay in payment and sale proceeds					
Political instability/Ethnic conflict					
Corruption of local state authority					
Other specify					
i					
ii					
iii					
iv					

Expectations of the farmer in interview days

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**Appendix6 Structured questions for quantitative data (Consumers)**

No : \_\_\_\_\_

Date \_\_\_\_\_

**CONSUMERS**

1.Name : \_\_\_\_\_

2. Age : \_\_\_\_\_

3. Occupation : \_\_\_\_\_ r

4. Sex :Male / Female

5. Education :Primary / School / High school / PUC /Graduate / PG

6. Family size : Male \_\_\_\_\_Female \_\_\_\_\_ Total \_\_\_\_\_

Adults \_\_\_\_\_

Children \_\_\_\_\_

1. Family income per month (Birr.) :

<1000	1000-2000	2001-3000	3001-4000	4001-5000	>5000

9. Monthly expenditure on (Birr)

Onion \_\_\_\_\_

Tomato \_\_\_\_\_



10. from where you are buying the vegetables?

Date	Particulars	Onion		Tomato		Unit cost/kg	
		Qut (kg)	Value (Birr)	Qut(kg)	Value (Birr)	Onion	Tomato
1.	Farmer						
	Cooperatives						
	Vendors						
2.	Farmer						
	Cooperatives						
	Vendors						
3.	Farmer						
	Cooperatives						
	Vendors						
4.	Farmer						
	Cooperatives						
	Vendors						
5.	Farmer						
	Cooperatives						
	Vendors						
6.	Farmer						
	Cooperatives						
	Vendors						
7.	Farmer						
	Cooperatives						
	Vendors						

Problems faced by the consumers during the transaction date

<b>Date</b>	<b>Onion</b>	<b>Tomato</b>
1		
2		
3		
4		
5		
6		
7		

**Major Problems faced by the consumer ( X sign)**

Type of the problem	Scale				
	1	2	3	4	5
No timely availability of produce					
Absence of grading facilities					
Very high prices					
Lack of transportation facility					
Price fluctuation (wide and low)					
Non-availability of suitable weighing facilities					
Quality of product is unsatisfactory					
Unsatisfactory responses and services rendered at a retail outlet					
Inconvenience / not nearness of the retail outlets					
Unhygienic condition					
No proper store design and visual merchandising					
No proper packing by the retailer					
Lack of market information/price/					
Lack of trust with the market					
Seasonal fluctuation of product availability					
No facility for feed back					
Short shelf time of products					
Other specify					
i					
ii					
iii					
iv					

Expectations of the consumer in interview days

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## Appendix 7 Check lists for key informants (Producers)

No : \_\_\_\_\_

Date \_\_\_\_\_

### Producers

1. Name/Code \_\_\_\_\_, age \_\_\_\_\_, sex \_\_\_\_\_, Education \_\_\_\_\_  
Marital status \_\_\_\_\_, size of family \_\_\_\_\_
2. Location of activities; where is your site of production?
3. Is this business your main business or not; Yes \_\_\_\_\_ no \_\_\_\_\_
4. Type of crop; what kind of crop you are producing? /Onion/Tomato or both/
5. Frequency; how many times you produce the crop? Why?
6. Year of experience; how long you have been in this business?
7. Why you chose this business?
8. Scale of business; What is the size of the land you have cultivated in the last three years
  - 8.1. Year 1 \_\_\_\_\_ ha
  - 8.2. Year 2 \_\_\_\_\_ ha
  - 8.3. Year 3 \_\_\_\_\_ ha
9. How much produce did you obtain in these three years?
  - 9.1. Year 1 \_\_\_\_\_ qt
  - 9.2. Year 2 \_\_\_\_\_ qt
  - 9.3. Year 3 \_\_\_\_\_ qt
10. Land ownership; how could you obtained the land? Is it accessible to water resource?
11. Technologies and facilities; what kind of machineries, equipment, transportation and storage facilities you are using?
12. Composition of costs of production; what are the major components of cost of production?  
Can you explain the cost of production in detail?
13. Who are the suppliers of your inputs? How do you manage to procure your inputs? Which means do you get credit facilities? Do you collect from their shop or they deliver to your site?
14. Who are the major actors and why they become so in the value chain?
15. How do you sell your product? Why you chose this method?

16. What are the major problems related with risks (physical loss, theft, prices etc.), access to market information, technologies, improved seed and chemicals, land ownership you are facing in the value chain?
17. How do government policies, programs, and regulations affect you?
18. What support from government would be useful?
19. How do you explain the seasonality of the production of Onion and Tomato
20. What are the institutions around your business area providing services or advices?

<b>Sl.No</b>	<b>Institution</b>	<b>Types of services</b>

21. Explain the level of coordination or integration with the followings regarding your business focusing of Onion and/or Tomato

<b>Service</b>	<b>Excellent</b>	<b>Very good</b>	<b>Good</b>	<b>Fair</b>	<b>Non existent</b>
Producers' association					
Research centres					
Other producers					
Input suppliers,					
Credit institutions,					
local administrations					
Market information					
Extension services					

22. Do have any other recommendations?

## Appendix 8 Check lists for key informants (Brokers)

No : \_\_\_\_\_

Date \_\_\_\_\_

### **BROKERS**

1. Name/Code \_\_\_\_\_, age \_\_\_\_\_, sex \_\_\_\_\_, Education \_\_\_\_\_  
Marital status \_\_\_\_\_, size of family \_\_\_\_\_
2. Locations of your activities; where do undertake your business?
3. Is this business your main business or not; Yes \_\_\_\_\_ no \_\_\_\_\_
4. Do you have business license?
5. What kinds of crop you are trading?
6. How long you have been in this business?
7. What kind investment you made in the business?
8. Sources of the produce; where are you collecting the products from?
9. Why you chose this business?
10. Explain how you are doing the business? How is the price of the produce decided in each day of transaction?
11. Who are the major actors and what are the benefits they obtain in the value chain?
12. Who are you supplying the product and why? What are the procedures? What are your comments in the procedures?
13. What kind of service you are providing to the producers?
14. What are the major problems you are facing in your business?
15. What kind of service you do recommend the government should provide?

## Appendix9 Check lists for key informants (Wholesaler)

No : \_\_\_\_\_

Date \_\_\_\_\_

### WHOLESALER

1. Name/Code \_\_\_\_\_, age \_\_\_\_\_, sex \_\_\_\_\_, Education \_\_\_\_\_  
Marital status \_\_\_\_\_, size of family \_\_\_\_\_
2. Locations of your activities; where do undertake your business?
3. Is this business your main business or not; Yes \_\_\_\_ no \_\_\_\_
4. Do you have business license?
5. What kinds of crop you are trading?
6. How long you have been in this business?
7. What kind investment you made in the business?
8. Sources of the produce; where are you collecting the products from?
9. Why you chose this business?
10. Explain how you are doing the business? How is the price of the produce decided in each day of transaction?
11. Who are the major actors and what are the benefits they obtain in the value chain?
12. Who are you supplying the product and why? What are the procedures? What are your comments in the procedures?
13. What kind of service you are providing to the producers, brokers and the retailers?
14. What are the major problems you are facing in your business?
15. What kind of service you do recommend the government should provide?

## Appendix 10 Check lists for key informants (Retailor/super markets)

No : \_\_\_\_\_

Date \_\_\_\_\_

### RETAILOR/SUPER MARKETS

1. Name/Code \_\_\_\_\_, age \_\_\_\_\_, sex \_\_\_\_\_, Education \_\_\_\_\_  
Marital status \_\_\_\_\_, size of family \_\_\_\_\_
2. At what interval you purchase Onion and Tomato from the market?
3. Locations of your activities; where do undertake your business?
4. Is this business your main business or not; Yes \_\_\_\_\_ no \_\_\_\_\_
5. Do you have business license?
6. What kinds of crop you are trading?
7. How long you have been in this business?
8. What kind investment you made in the business?
9. Sources of the produce; where are you collecting the products from and why?
10. Why you chose this business?
11. Explain how you are doing the business? How is the price of the produce decided in each day of transaction?
12. Who are the major actors and what are the benefits they obtain in the value chain?
13. Who are you supplying the product and why? What are the procedures? What are your comments in the procedures?
14. What kind of service you are providing to the producers, brokers and the retailers?
15. What are the major problems you are facing in your business?
16. What you do recommend the government should do in order to mitigate the problems you mentioned?



**Appendix 11 Check lists for key informants (Consumer)**

No : \_\_\_\_\_

Date \_\_\_\_\_

**CONSUMER**

1. Name/Code \_\_\_\_\_, age \_\_\_\_\_, sex \_\_\_\_\_, Education \_\_\_\_\_  
 Marital status \_\_\_\_\_, size of family \_\_\_\_\_, Monthly income, \_\_\_\_\_  
 Birr, occupation \_\_\_\_\_
2. At what interval you purchase Onion and Tomato?
  - 2.1. Every day \_\_\_\_\_
  - 2.2. Once per week \_\_\_\_\_
  - 2.3. Twice per week \_\_\_\_\_
  - 2.4. Others( Explain) \_\_\_\_\_
3. What do you feel regarding the fluctuation of the price of Onions and Tomato?
4. When the price of Onion and Tomato keep increasing what do you opt to do?
5. What is your opinions regarding the quality of Onion and Tomato available in the market?
6. What is your opinions regarding the quality of the services in relation with Onion and Tomato available in the market?
7. Where do usually buy Onion and Tomato from and why?
  - 7.1. Retailer market \_\_\_\_\_
  - 7.2. Gullet (Small village market) \_\_\_\_\_
  - 7.3. Farmer \_\_\_\_\_

Daily purchase by consumer

Date	Onion		Tomato		Average price/kg	
	Qty(Kg)	Value(Birr)	Qty(Kg)	Value(Birr)	Qty(Kg)	Value(Birr)

1. Does the price of Onion and Tomato fluctuate following some event, like holy days? Why?
2. What are the major problems you most frequently encounter when you go out to buy Onion and Tomato?
3. What do recommend to the government as to mitigating the major problems you mentioned above?

**Appendix 12 Check lists for key informants (Experts)**

No : \_\_\_\_\_

Date \_\_\_\_\_

**Key informants check list**

<<Offices of rural and natural development/ investment/ Oromia cooperative agency/ >>

1. What are the main stay of economic activity of the population of the research area, at least three of them in their order of importance
2. Explain the value chain of Onion and tomato in terms of the flow of produced, actors involved, support institutions, flow of information, determination product price?
3. What are the challenges, the disturbances, magnitude, level of incidence and their impacts in the value chain of onion and tomato?
  - 3.1. Matrix of challenges and disturbances

Main Challenges	The disturbances in the value chain	Level of incidence			Level of magnitude			Level of impact		
Lack of clear and appropriate policy	Increasing cost									
	Decreasing competitiveness									
	Decreasing product and service quality									
	Increasing business and investment risk									
	Decreasing foreign investment									
	Decreasing domestic investment									
	Constraining willingness to pursue long term strategies									
Main Challenges	The disturbances in the value chain	Level of incidence			Level of magnitude			Level of impact		
Lack of clear and appropriate policy	Increasing cost									
	Decreasing competitiveness									
	Decreasing product and service quality									
	Increasing business and investment risk									
	Decreasing foreign investment									
	Decreasing domestic investment									
	Constraining willingness to pursue long term strategies									

Main Challenges	The disturbances in the value chain	Level of incidence			Level of magnitude			Level of impact		
Lack of infrastructure	Increasing cost									
	Decreasing competitiveness									
	Decreasing product and service quality									
	Increasing business and investment risk									
	Decreasing foreign investment									
	Decreasing domestic investment									
	Constraining willingness to pursue long term strategies									
		<b>The disturbances in the value chain</b>	<b>Level of incidence</b>			<b>Level of magnitude</b>			<b>Level of impact</b>	
Climate changes	Increasing cost									
	Decreasing competitiveness									
	Decreasing product and service quality									
	Increasing business and investment risk									
	Decreasing foreign investment									
	Decreasing domestic investment									
	Constraining willingness to pursue long term strategies									
		<b>The disturbances in the value chain</b>	<b>Level of incidence</b>			<b>Level of magnitude</b>			<b>Level of impact</b>	
Access to irrigation land	Increasing cost									
	Decreasing competitiveness									
	Decreasing product and service quality									
	Increasing business and investment risk									
	Decreasing foreign investment									
	Decreasing domestic investment									
	Constraining willingness to pursue long term strategies									
		<b>The disturbances in the value chain</b>	<b>Level of incidence</b>			<b>Level of magnitude</b>			<b>Level of impact</b>	
Input supply	Increasing cost									
	Decreasing competitiveness									
	Decreasing product and service quality									
	Increasing business and investment risk									
	Decreasing foreign investment									
	Decreasing domestic investment									
	Constraining willingness to pursue long term strategies									

Technology	<b>The disturbances in the value chain</b>	<b>Level of incidence</b>			<b>Level of magnitude</b>			<b>Level of impact</b>		
Technology	Increasing cost									
	Decreasing competitiveness									
	Decreasing product and service quality									
	Increasing business and investment risk									
	Decreasing foreign investment									
	Decreasing domestic investment									
	Constraining willingness to pursue long term strategies									
		<b>The disturbances in the value chain</b>	<b>Level of incidence</b>			<b>Level of magnitude</b>			<b>Level of impact</b>	
Lack improved seed	Increasing cost									
	Decreasing competitiveness									
	Decreasing product and service quality									
	Increasing business and investment risk									
	Decreasing foreign investment									
	Decreasing domestic investment									
	Constraining willingness to pursue long term strategies									
		<b>The disturbances in the value chain</b>	<b>Level of incidence</b>			<b>Level of magnitude</b>			<b>Level of impact</b>	
Lack extension services	Increasing cost									
	Decreasing competitiveness									
	Decreasing product and service quality									
	Increasing business and investment risk									
	Decreasing foreign investment									
	Decreasing domestic investment									
	Constraining willingness to pursue long term strategies									
		<b>The disturbances in the value chain</b>	<b>Level of incidence</b>			<b>Level of magnitude</b>			<b>Level of impact</b>	
Lack of market information	Increasing cost									
	Decreasing competitiveness									
	Decreasing product and service quality									
	Increasing business and investment risk									
	Decreasing foreign investment									
	Decreasing domestic investment									
	Constraining willingness to pursue long term strategies									

Lack of quality standardization	<b>The disturbances in the value chain</b>	<b>Level of incidence</b>			<b>Level of magnitude</b>			<b>Level of impact</b>		
	Increasing cost									
	Decreasing competitiveness									
	Decreasing product and service quality									
	Increasing business and investment risk									
	Decreasing foreign investment									
	Decreasing domestic investment									
	Constraining willingness to pursue long term strategies									
		<b>The disturbances in the value chain</b>	<b>Level of incidence</b>			<b>Level of magnitude</b>			<b>Level of impact</b>	
Others to identified by the key informant	Increasing cost									
	Decreasing competitiveness									
	Decreasing product and service quality									
	Increasing business and investment risk									
	Decreasing foreign investment									
	Decreasing domestic investment									
		Constraining willingness to pursue long term strategies								

1= Low, 2= significant, 3=very significant

Should the value chain of Onion and Tomato be resilient what has to be done with respect of production, Marketing, infrastructure and cost effectiveness?

4. How do you explain the contribution of the value chain of Onion and Tomato with respect of Income generation, employment opportunity and social stability?
5. What are realities and future possibilities for both vertical and horizontal integration of actors and support institutions with in the value chain of Onion and Tomato
6. What is the current assistance being provided by research centre and how do you evaluate it?
7. Explain the availability of credit facilities and their short comings?
8. General comments?

## Appendix 13 Focus group discussion Guide

No : \_\_\_\_\_

Date \_\_\_\_\_

### FOCUS GROUP DISCUSSION

Heterogeneous group- /Producers, wholesalers, brokers, retailers and consumers/

1. What is the general situation regarding the current market of Onion and Tomato?
2. Who are the major actors in the value chain of Onion and Tomato?
3. Map the value chain structure, including segments, key stocks and flows of resources, institutions, and other interacting systems. (Describe the flow of produces in the value chain starting from the producers up to the last consumers? Draw the map? Discuss the role of each actor in the line of the value chain? What are the benefit or gain of each actor the value chain
4. Identify the essential services that the value chain provides to consumers/customers, value chain actors, and their stakeholder communities.
5. Identify crucial value chain components upon which the value chain directly depends, including physical, natural resources, and financial resources, and capacities.
6. Describe any key rules governing access to and use/withdrawal of crucial components, and to what extent they are effective.
7. Reflecting on the last 1 to 3 years, identify the major disturbances that have affected crucial components of the value chain. Describe these disturbances, in terms of their probable causes, whether they were discrete “shocks” or more gradual “stressors,” and their frequency of occurrence.
8. Describe the effects of each disturbance on the value chain, in terms of the different segments and functions, the provision of essential services, and the estimated time required for the value chain to recover from each disturbance.

9. Assess whether the value chain is currently in a state of growth, stability, or decline, and identify the indicators that suggest this state.
10. Describe any actions that are currently being taken to keep the value chain resilient or suggest better recommendations to mitigate the impacts of the current transitional period and keep the value chain of **Onion and Tomato** more and more growing. ?

### 11. Describe the role and influence of technology on Onion and Tomato value chain

Appendix 14 Demographic data of the value chain actors

Name	Sex	Main Crop/s operated in the season	Size of farm area of	Year of experience	Level of education	Tel.No.
<b>Producers</b>						
Abu Dagne	M	Onion	4ha	10		0921514604
Gemech Abiyaa	M	Tomato	1ha	4		0913409135
Dabala Nadi	M	Onion	1	5		0924946659
Shimeles Fikadu	M	Onion	4	9		0920067423
Majoo Nagwa	M	Tomato	2.5	2		9012141439
<b>Broker</b>						
Abiti Jimma	M	Onion and Pepper		Three	NA	0904436189
Jambaw Garsuu	M	Onion, pepper and Tomato		Five	NA	0949406048
Duuga Doori	M	Tomato		Twelve		
<b>Wholesaler</b>						
WS30	M	Onion		8	10th	
WS29	M	Tomato		10	11th	
WS39	M	Onion, Potato Banana		10	12th	
<b>Retailer</b>						
PA31		Onion		6	10th	NA
PS29		Onion and Tomato		6	10th	
PC34	M	Onion, Tomato and Potato		7	10 <sup>th</sup>	



<b>TG31</b>	M	Onion and Tomato	5	11th
<b>PG34</b>	M	Onion and Tomato	8	10th

**Cont. Demographic data, Consumer**

Code	Sex	Age	Family size	Monthly Income				
				1000- 2001	2001- 3000	3001- 4000	4001- 5000	>5000
PD48	F	48	5			x		
PS19	F	19	6					X
PA53	F	53	5					X
PES34	F	34	4					X
PW40	F	40	6				X	
<b>Total</b>						1	1	3
<b>Distribution by level of income</b>						20%	20%	60%

N;B In the name column of wholesaler, retailers and consumers codes have been used since they want to be anonymous.

List of participants in FGD

Sl.No.	Name	Position	Tell. No.
1.	Genet Mebratu	Expert in cooperative	0946939209
2.	Sewenet Aklilu	Market Development Expert	1911780422
3.	Dagne Alemu	Expert in Agri business	1912235647
4.	Tadesse Alemu	Marketing and supply expert	0912236346
5.	Doggo Lemi	Vegetable Producer	0910406167
6.	Sisay Degu	Wholesaler	0921785861
7.	Keleti Shallo	Broker	0921724859
8.	Beshado Digo	Vegetable Producer	0927266364

List of KIs

Sl.no	Name	Organization	Responsibility	Tell.no.
1.	Asmare Dagne (PhD)	Melkasa Agricultural Research Center	Senior horticultural researcher	0911145198
2.	DawitAsseged	Lume wereda Agricultural and Rural Development office	Horticulturalist	0924418147
3.	BorechaWakene	Private	Producer	0911613748
4.	Alemu Adugna	Lume wereda Agricultural and Rural Development office	Planning and budget section	0979480034 0222366614
5.	SorreseFekadu	Awash Saving and Credit Union	Manager	
6.	GetuMekonnen	Lume wereda Agricultural and Rural Development office	Market development	0912905951
7.	DassenaWana	Federal cooperative agency	Marketing senior expert	0113690168
8.	Tadesse Kenea	Oromia cooperative promotion agency	Cooperative marketing expert	0910797455
9.	Tedla Tadesse	Oromia cooperative promotion agency	Cooperative marketing expert	0920927836
10.	Debebe Shemels	Oromia cooperative promotion agency	Chemical supply and distribution expert	0966334593
11.	Dereje Deressa	Oromia Agricultural Cooperative Federation	Agriculture and Cooperative Development head	0911809685

## **The preamble of the questionnaires**

I, Mr./Miss/Miss\_\_\_\_\_ am the data collector employed by Mr. TsegayeTedla to help him in collecting data necessary for his research activity that hi is going to submit as the partial fulfilment for his second degree graduation in MBA. The data are solely used for the research purpose and any information you are going to tell me are so confidential and will not be transferred to any third body by any circumstances.

### **A. Data collection Procedure**

1. The respondents are categorized as Producers, wholesaler, retailer and consumer, key informants and focus groups discussants
2. Each data collector will be assigned to each category except for the key informants and focus group discussants which will be the responsibility of the researcher
3. Each data collector will stay out for seven consecutive days to collect the data
4. Before the collection of data tarts sufficient orientation will be given on the questionnaire and pilot test will be conducted among the data collectors themselves.

### **B. Size of the target group**

- |                           |                    |
|---------------------------|--------------------|
| a. Producers              | 5                  |
| b. Broker                 | 5                  |
| c. Wholesalers            | 5                  |
| d. Retailers              | 5                  |
| e. Consumers              | 5                  |
| f. Key informants         | 1 from each office |
| g. Focus group discussion | 7-12 participant   |