Mekelle University

College Of Business and Economics

Department Of Management

VALUE CHAIN ANALYSIS of FRUITS for DEBUB BENCH WOREDA, BENCH MAJI ZONE, SNNPR

(A case of three selected fruits, banana, mango and papaya)

A Thesis Submitted in Partial Fulfillment of the Requirements for the Award of Master of Arts Degree in Business Administration

(International business concentration)

BY:

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January, 2014

DECLARATION

I, **Muluken Marye**, hereby declare that the thesis entitled **"Value Chain Analysis of Fruits for Debub Bench Woreda, Bench Maji Zone"**, submitted by me for the award of the Degree of Master of Business Administration with specialization in International Business, Mekelle University at Mekelle, is my original work and it hasn't been presented for the award of any other Degree, Diploma, Fellowship or other similar titles of any other university or institution.

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CERTIFICATION

This is to certify that this thesis entitled **"Value Chain Analysis of Fruits for Debub Bench Woreda, Bench Maji Zone"**submitted in partial fulfilment of the requirements for the award of the degree of **Master of Business Administration** with specialization in **International Business** to the College of Business and Economics, Mekelle University, through the Department of Management, done by Mr. **Muluken Marye,** ID No. **CBE/PR053/05** is an authentic work carried out by him under our guidance. The matter embodied in this thesis has not been submitted earlier for award of any degree or diploma to the best of our knowledge and belief.

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ABBREVIATIONS AND ACRONYMS

AAFC	Agriculture and Agri-Food Canada
ACET	African Center for Economic Transformation
AMA	American Marketing Association
BMZRDB	Bench-Maji Zone Rural Development bureau
BMZTCB	Bench Maji Zone Tourism and Communication Bureau
CSA	Central Statistical Agency
DBOARD	Debub Bench office of agriculture and rural development
FAO	Food and Agricultural Organization
FAOSTAT	Food and Agricultural Organization Statistical Division
IPMS	Improving Productivity and Marketing Success
IFAD	International Fund for Agricultural Development
KM	Kilo Meter
KG	Kilo Gram
NGO	Non-Governmental Organization
RDO	Rural Development Office
SCM	Supply Chain Management
SNNPR	South Nations Nationalities and Peoples Region
SPSS	Statistical Packages for Social Sciences

Table of Content

LIST OF TABLES

List of figures

List of appendices

ABSTRACT

This study was aimed at analyzing value chain of fruits in Debub Bench woreda, Bench Maji zone with specific objectives of describing important marketing channels and actors involved on fruit value chain, identifying the upgrading strategies in fruit value chain, analyzing the governance structure in the fruit value chain, analyzing the value addition and distribution between the different actors, and identify constraints in value chain of the fruit. This is due to fruits are highly perishable product and it is bulky and of relatively small individual value, and requires rapid, cost-efficient transportation to buyers and consumers. Its quality also deteriorates very rapidly and the ability to consistently provide high-quality products depends on the commitment of all players in the supply chain. The data were collected from both primary and secondary sources. The primary data for this study were collected from 182 farmers and 20 traders through application of appropriate statistical procedures. To analyze the collected data the Statistical package for Social Sciences (SPSS) version 20 was used. Accordingly, the value chain activities in the survey period were production, marketing and consumption. It is also found out that fruits pass through several intermediaries with little value being added before reaching the end users. Therefore, farmers are forced to capture a lower share of profit margin. The highest marketing cost is incurred by wholesalers and the highest market profit is shared by retailers. The governance structure of fruits found in the woreda is hierarchical governance structure. The study result exhibited that fruits producers are faced low supply of fruits seed, low irrigation facility, lack of technical training, lack of credit access, low yield, On marketing side, storage problems, low price of fruits, price fluctuations, and trader give same price and no market. The value chain analysis revealed that the major actors in the Woreda are producers, local collectors, wholesalers, retailers and consumers. Five marketing channels are identified for banana, mango and papaya fruits. The findings of the study have important implication in upgrading the livelihood of smallholder producers, for agricultural research institutions, policy makers and researchers. Infrastructural development is a key to support the fruits sector. In this context, emphasis should be given to improved storage and transportation system, offering credit and other services to improve effective production and marketing of fruits.

Key words Value chain analysis, Fruits, Bench Maji zone, Debub Bench woreda, Governance structure, Value addition, Upgrading

CHAPTER ONE

INTRODUCTION

1.1 Background of the study

Global fruit and vegetable production has experienced an outstanding increase. In 2011, almost 640 million tons of fruit were collected all over the world (FAOSTAT, 2013). As Lumpkin et al (2005) pointed out worldwide production of fruit and vegetable crops have grown faster than that of cereal crops. Between 1960 and 2000, the area under horticultural crops worldwide has more than doubled. Among the key reasons are attributable to the growth, high profit from horticulture as compared to cereals was the prime one. Per capita farm income from horticulture has been reported up to five times higher (Lumpkin et al, 2005).

Most of the Sub Saharan farmers have small pieces of land for production of different agricultural products (0.9 to 3ha), and production is mainly rain fed. The production of fruits in sub-Saharan Africa has grown less than o.5% a year over 2005-2009, lower than the global average of 2.7%. Major fruits like bananas, mangoes grew highly at 2% a year and large in volume. In the region most fruits are produced by smallholder and many of these producers are not commercially oriented from the production (ACET, 2012). IFAD's regional strategy for sub-Saharan Africa emphasized on improving the income of smallholders within the context of trade liberalization. Smallholder production and the marketing of fruits and vegetables is a key focus (IFAD, 2003).

In Ethiopia, fruits yields experienced a sharp decrease in the late 1990's and late 2000's (Nicolas et al, 2012). Know a day, efforts has being taken to improve the fruits yield in a country by growing in southern and southwestern highlands and recently in the cool highlands of Central and Northern highlands. According to Dayanandan (2012) Southern and South western part of Ethiopia has suitable agro ecological environment, receives adequate amount of rainfall that are suitable to produce sub-tropical or tropical fruits. Additionally, the presence of many rivers and streams helps the farmers to produce varieties of fruits. Despite

this potential, however, production-market chore of fruits has stayed undeveloped in Ethiopia (Joosten, 2007) mainly due to traditional focus which was in favor of cereals. Serious lack of information and 'on and off' productions have also played their deterring role (Naamani, 2007).

Debub Bench Woreda where this study focuses was one of the naturally endowed areas in terms of capacity to grow different horticultural crops. Major types of horticultural crops currently growing in the district are banana, mango, papaya and lemon. CSA (2013) from the total land of Bench Maji Zone 2,015.16 hectare of land is under fruit crops. Banana contributed 66.73% of the fruit crop area followed by mangoes that contributed 14.49% of the area and followed by papaya that contributed 6.63% of the area the left is by other fruits. More than 184,520.76 quintal of fruit was produced in Bench Maji Zone. And in Debub Bench Woreda 80,756 quintal of these three products has produced; Banana, mangoes and papayas took up 64.68%, 16.15% and 13.64% of the fruit production respectively.

Value chain is the sequence of activities required to make a product or provide a service (Vermeulen et al., 2008). The value chain concept entails the addition of value as the product progresses from input suppliers to producers and consumers. So, this study was proposed to investigate the value chain analysis of major fruits produced in Debub Bench Woreda, Bench Maji Zones. Therefore, it helps to find the weakest link of the chain and to narrow the information gap on the subject.

1.2 Statement of the problem

The term value chain describes 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 consumers, and final disposal after use (Kaplinsky and Morris, 2001). It is relevant to conduct value chain study to have an understanding of markets, the participation of different actors, their relationships, and the critical constraints that reduce the growth of fruit production and subsequently the competitiveness of smallholder farmers. Know; most farmers are receiving a small portion of the final value of their output.

Agriculture is central to Africa's agenda, and efforts have made to link production with agribusiness for better growth in the sector. Now a day, earns an average of 24 per cent of its annual growth from its farmers and their crops value chains reveal common and well-known constraints, such as poor infrastructure; fragmented and risky markets; poorly functioning input markets; difficulties accessing land, water, and finance; and inadequate skills and technology. More revealing, however, is the big differences across value chains (World Bank, 2013).

Improving Productivity and Marketing Success (IPMS) (2011) reported that fruit value chain in Ethiopian are constrained by; limited knowledge and skills on (irrigated) fruit production and post-harvest handling by producers and service providers, existing fruit varieties take a long time to reach maturity, have unmanageable heights and large canopy, from which harvesting is difficult and canopies often have a negative interaction with lower story crops, general lack of improved variety (grafted) planting materials; and production and delivery system for such inputs is dominated by government which is mostly inefficient, unknown market structure for improved fruit varieties, and seasonal variation in production leading to fluctuating prices over time.

Fruits are highly perishable product and it is bulky and of relatively small individual value, and requires rapid, cost-efficient transportation to buyers and consumers. Its quality also deteriorates very rapidly and the ability to consistently provide high-quality products depends on the commitment of all players in the supply chain.

There are a lot of studies conducted on value chain of different agricultural products. For instance; a study conducted by Ferdous et al (2012) on value chain analysis for Fish Species in Bangladesh, the study employed simple statistical measures to examine the value chain analysis of different species of fishes and the study find out the high involvement of intermediaries in fish marketing and the non-existence of good road and transport service deprive small-scale fishers to get fair price due to their inability to sell directly to the assembling points/landing centers. The study suggests the government to provide roads and infrastructures to make the small holder beneficiary by direct selling the produces.

Debub Bench Woreda the place where this study was conducted is highly known by its potential in producing variety of fruits for home consumption and market. Furthermore, the current report of CSA (2013) showed that the produced fruits have low proportion to access market, and the farmers are not significantly beneficiary from the produced fruits. Even though, there are a high potential to produce different fruits and the low proportion to market in the area, so far as per the researcher knowledge, there is no research information conducted to assess these problems on the study area. Therefore, these inspire the researcher to conduct value chain analysis on the study area and believe that value chain analysis is essential.

1.3 Objectives of the study

1.3.1 General objective of the study

The general objective of the study was to analyze the value chain of banana, mango and papaya fruits produced in Debub Bench woreda.

1.3.2 Specific objective of the study

In order to meet the intended purpose of the research, the study would have the following specific objectives;

- To describe important marketing channels and actors involved on fruit value chain
- To identify the upgrading strategies in fruit value chain
- To analyze the governance structure in the fruit value chain
- To analyze the value addition and distribution between the different actors
- To identify constraints in value chain of the fruit

1.4 Research questions

In order to achieve the intended objectives of the study the following research questions were addressed by the researcher;

1. What are the existing market channels and actors on fruit value chain?
2. How values are added is distributed among the chain actors?
3. How governance is structured on the chain?
4. What are constraints in fruit value chain?

1.5 Significance of the study

The main significance of the study was for all actors in the marketing system to make improvement on their day to day activities and their operation by having of the forwarded supportive points of the researcher. Additionally, the study has generated important information for policy maker to formulate fruit marketing development programs and guidelines for interventions that would improve efficiency of the fruit marketing system. It also provides a holistic picture of existing challenges, opportunities and entry points in the fruits value chain. Furthermore, this study might help the researcher to gain insight on how to conduct research and it helps other researcher as source material for further study.

1.6 Scope of the study

Geographic area coverage of this study was Debub Bench woreda in Maji Zone, SNNPR, with specific focus on banana, mango and papaya. These fruits account for the major proportion of production in the study area.

Conceptually, identifying the roles of actors, value chain upgrading, value addition and distribution among the chain actors, governance and identification of value chain constraints were the center of the study.

Methodologically, the study was a descriptive study in which representative sample size was selected by using probability sampling techniques. Both quantitative and qualitative data were obtained from 182 respondent farmer‘s selected using simple random sampling technique from woreda of the study area. Questionnaire and focus group interview were used as a data collection instrument. For analysis, the study used descriptive statistics. The collected data through questionnaire was entered in to a software called SPSS (Statistical Package for Social Sciences) to find the frequency of distribution.

1.7 Limitation of the study

The geographical limitation of the study was that it gave emphasis for only one woreda of the zone. Methodological limitations was that, by its nature value chain needs qualitative data collection instruments but the study used questionnaire and focus group discussion due to time and budget constraints. Conceptually, the study limitations were; that it does not

incorporate the enabling environments to assess the value chain and it also does not consider the marketable surplus of the fruit in the study area.

1.7 Organization of the paper

The study has five chapters. The first chapter discussed about the introduction, statement of the problem, research question, and objective of the study, significance of the study, scope of the study and limitation of the study. The second chapter discussed about review of related literature. The third chapter dealt about the methodology of the study like study design, types of data, source of data, data collection method, sample size and method of data analysis. The fourth chapter dealt about the analysis and interpretation of the collected data. And the fifth chapter dealt about summary of the finding, conclusion and recommendation of the study.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.1 Value and Value Chain Concept

The value chain concepts provides a significant means to recognize business-to-business relationships that connect the chain, devices for enhancing efficiency, and ways to enable businesses to increase productivity and add value. In addition, it provides a reference point for enhancements in supporting services and the business environment (Webber and Labaste, 2010).

2.1.1 Understanding the term Value Chain

Value chain has recently emerged as a widely held business notion. There are many definitions forwarded by different authors in different time for the term value chain. Let's look some of the definitions based on chronological order.

Value chain as a collection of activities that are accomplished to design, produce, market, deliver and support its product. An organization's competitive advantage is based on their product's value chain. The objective of the company is to deliver maximum value to the end user for the least possible total cost to the company, thereby maximizing profit (Porter, 1985).

Kaplinsky (2000) describes Value Chain as "full range of activities which are required to bring a product or service passing through the intermediate phases of production to delivery to consumers and final disposal after use". According to Gereffi (1994) the actors of a chain, the input-output, and the territorial structure along with technical structure define a value chain.

"The description of 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 consumers, and final disposal after use." A further distinction is made between

simple and extended value chains indicating the complexity in the real world situation (Kaplinsky et al., 2001)

Gibbon and Ponte (2005) describes "value chain" typically, as the full range of value adding activities required to bring a product or service through the different phases of production, including procurement of raw materials and other inputs, assembly, physical transformation, acquisition of required services such as transport, and ultimately response to consumer demand.

According to Berne (2007) value chain is about identifying the full set of economic cost along the value chain, to determine where how much value is added and what the relative importance of different actors is (i.e. the formal and informal governance structure).

2.1.2 Value Chain Vs Supply and Market Chain

Although it is difficult to draw clear peculiarities among these often corresponding concepts, it is still advisable to provide some basic definitions and focus on some of the differences between market chain, value chain and supply chain. The terms market chain, supply chain and value chain are often used interchangeably, but in fact, there are some important differences.

In its simplest definition, the terms market chain and supply chain are synonyms used to describe all participants involved in an economic activity which uses inputs and services to enable a product to be made and delivered to a final consumer.

A value chain is understood as a strategic network between a numbers of independent business organizations. According to Hobbs et al (2000) a value chain is differentiated from a market / supply chain because:

- Participants in the value chain have a long-term strategic vision.
- Participants recognize their interdependence and are disposed to work together to define common object, share risks and benefits, and make the relation work.
- It is oriented by demand and not by supply, and thus responds to consumer needs.

- Participants have a shared commitment to control product quality and consistency.

Participants have a high level of confidence in one another that allows greater security in business and facilitates the development of common goals and objectives.

Lunndy et al (2004) market chain is used to describe the numerous links that connect all the actors and transactions involved in the movement of agricultural goods from the farm to the consumer, Supporting by services that enable the chain to operate.

Dunne (2001) defined supply chain as the physical flow of goods that are required for resource to be transformed into finished products. SCM is the mechanism of making the chain as efficient as possible through better flow arrangement and raw materials use, enhancing quality control all over the chain, minimizing the risk related with food safety and contamination, and reducing the agricultural industry's reaction to changes in consumer demand for food attributes.

The term value chain is to mean a group of companies working together to satisfy market demands. It comprises a chain of activities that are related with adding value to a produce through the production and distribution processes of each activity (Schmitz, 2005). The firm's competitive advantage is based on their product's value chain. The objective of the firm is to deliver maximum value to the final user for the least possible total cost to the firm, thereby maximizing profit (Porter, 1985).

Gibbon and Ponte (2005) describes "value chain" as the full range of value adding activities required to bring a product or service through the different phases of production, including procurement of raw materials and other inputs, assembly, physical transformation, acquisition of required services such as transport, and ultimately response to consumer demand.

2.1.3 Value Chain Activities

Porter (1985) proposed the value chain as an instrument for identifying ways to create more customer value. Each firm is a combination of activities that are performed to design, produce, market, deliver and support its product. He also identified nine strategically

significant activities that create value and cost in a particular business. These nine value creating activities involve five primary activities and four support activities.

The primary activities represent the sequence of bringing raw materials into the business (inbound logistics), converting them into end products (operations), shipping out final products (outbound logistics), marketing the final products (marketing and sales), and servicing them (service). The support activities namely procurement, technology development, human resource management, and firm infrastructure are controlled by certain specialized departments, but also by other departments coordination (porter, 1985).

These activities can be performed within a single firm or distributed to other different firms, as well as within a single geographical area or spread over broader areas. The term 'value chain' is referred to the fact that value is added to primary products through synthesis with other resources (for instance tools, manpower, knowledge, skills and other raw materials or primary products).As the product moves through the stages of the value chain, its value increases(Geneva, 2009).

A study by Le Nguyen (2007) used porter's value chain model for the case of Pangasius industry to identify the value chain primary and secondary activities performed to add value on fish products. Accordingly, the study identified the implication of performing value chain activities in determining the cost and profits of the industry.

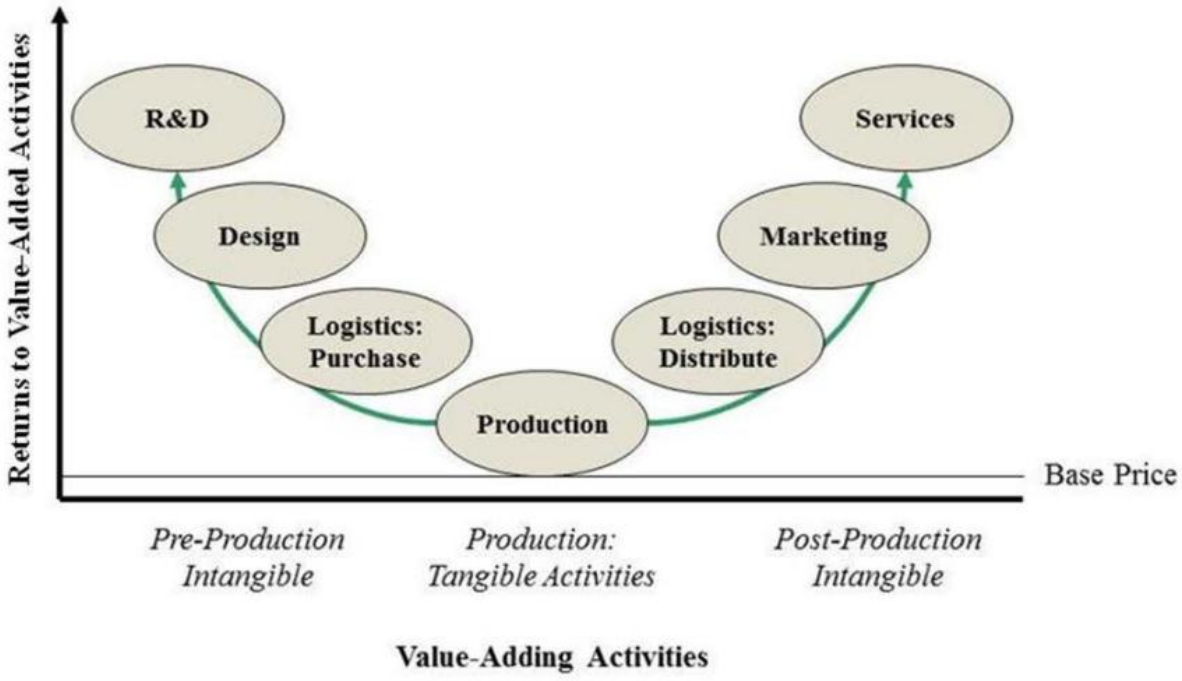

Figure 2.1, value adding activities and return relationships, Source: Gereffi (2012)

2.1.4 Value Chain Upgrading

According to Webber and Labaste (2010), Upgrading means the competitiveness of the value chain by moving it in a new direction towards a new market or customer; toward increased efficiency; or toward adding operations within the value chain.

Kaplinksy and Morris (2001) also defined upgrading as the acquisition of technological capabilities and market linkages that permit firms to enhance their competitiveness and move into higher-value activities.

2.1.4.1 Types Upgrading

Action that increase the competitiveness of a value chain may take several forms enhancing product quality, adding more processes to the chain, taking a new market channel, and entering a distinct value chain (new market) with the existing product.

1. **Process upgrading**- increasing the efficiency of internal operations such that these are significantly better than those of rivals, both within individual links in the chain, and between the links in the chain.
2. **Product upgrading**- introducing new products or improving old products faster than rivals. This involves changing new product development processes both within individual links in the value chain and in the relationship between different chain links.
3. **Functional upgrading**- increasing value added by changing the mix of activities conducted within the firm or moving the locus of activities to different links in the value chain.

2.1.5 Value Chain Governance Structure

Governance is defined as how control is exercised with in the value chain actors and plays a major role in how production capabilities are upgraded; determine the sustainability of the value chain and distribution of an equal benefit among the value chain actors (Marshal et al, 2006).

"Governance" is a depiction of the dynamic distribution of power, learning, and leadership in standards and strategy setting among a value chain's firms (Webber and labaste, 2010).

Humphrey and Schmitz, (2001) internal governance structure refers to the overall form of inter linkages which result in systematic efficiency; whereas, external governance structures include standards that producers legally follow to get hold of market.

Similar study made by Gereffi et al (2005) the three variables which shape internal GVC governance structures are, *complexity* of information and knowledge transfer required to sustain a particular transaction particularly through value to product and process specifications; secondly the *codification* of information and knowledge and the third one is *capabilities* of actual and potential suppliers in relation to the requirements of the transaction.

2.1.5.1 Four Types of Relationships in Governance Structure

Dunn (2005) developed four types of relationships that characterized governance by centering on information and market power. These are;

Market relationship: - here transactions are repeated with little information exchanging, limited interaction and with no technical assistance provision.

Balanced relationship: - it's characterized by two way flows of information, high definition regarding the product design and specification, have capabilities hard to substitute and have a skill of negotiation.

Direct relationship: - buyers can define the product design and specification, key buyer takes a huge proportion of dealer's output and controls the dealer's performance. The buyer provides technical assistance and more familiar about the costs and capabilities of the dealer than the dealer does about the buyer. The dealer's exit options are more limited than those of the buyer.

Hierarchical relationship: vertical integration of value added functions within a single firm. The buyer is owned by the supplier or vice versa, with the junior firm having limited independence to make decisions at the local level.

Table 2.1 Key determinants of global value chain governance

Governance Type	Complexity of transactions	Ability to codify transactions	Capabilities in the Supply-base	Degree of explicit Coordination and Power asymmetry
Market	Low	High	High	Low
Modular	High	High	High	↕
Relational	High	Low	High	
Captive	High	High	Low	
Hierarchy	High	Low	Low	High

Source: Gereffi et.al (2005)

2.1.6 Value Addition

The term value-added can be interpreted in many ways. In agricultural policy, it predominantly describes the steps that alter or add to a product or service. It is an innovation that enhances or improves (in the opinion of the consumer) an existing product, or introduces

new products or new product uses. This allows the farmer to create new markets, or differentiate a product from others and thus gain an advantage over competitors. In so doing, the farmer can ask a higher premium (price) or gain increased market share or access (AAFC, 2004)

Value is added when products pass different stages and move from one intermediary to another. Ostertag et al. (2008), defines value addition as one aspect of marketing deals with practices that change or transform a primary product into goods that have additional value. They classified values adding activities based on their simplicity and difficulties. The simplest are washing, cleaning, grading, bulking and storage; these activities are conducted by the control of farmers. And the complicated are ginning, roasting, refrigerating, milling, cutting, mixing, dehydration, cooking and packaging. These activities are generally undertaken by specialist market chain actors or service providers.

Value addition to horticultural crops is of considerable importance when considering post-harvest operations of fruits. It will be an economic waste if production losses are high due to poor handling. Reduction of wastage therefore must be a concern in order to improve on the quantity of the product acceptable to the consumer "as fresh" or as 'finished product'. Production, harvesting and post - production systems of horticultural crops play a very important role in bringing these crops to the consumers cheaply. For ease of differentiation, post-harvest operations in this write up will be divided into two parts. These are: post-harvest handling and post-harvest food production (Omo, 2003).

Value addition is created at different stages and by different actors throughout the market chain. The addition of value may be related to quality of the product, costs of the product, delivery times, delivery flexibility, innovativeness, etc… of the chain members. The size of value addition is determined by the willingness of the end user to pay for the delivered products. The opportunities to add value by the company is depend on a number of factors, such as market characteristics (size and diversity of markets) and technological capabilities of the actors. Likewise, market information on product and process requirements is a key to being able to produce the right value for the right market. In this respect finding value adding opportunities is not only related to the relaxation of market access constraints in existing markets but also to finding opportunities in new markets and in setting up new

market channels to address these markets. Value addition capture can be divided into five major categories (Kaplinsky, 2000):

- trade rents (forthcoming from production scarcities or trade policies
- technological rents (related to asymmetric command over technologies
- organizational rents (related to management skills
- relational rents (related to inter-firm networks, clusters and alliances)
- Branding rents (derived from brand name prominence).

Value is added when products pass different stages and move from one intermediary to another. The different cost components required for successive movement of fruits are transportation, packaging, wages and salaries, government taxation.

2.1.7 Distribution of Value Addition

Distribution of value addition over numerous actors is highly associated with the governance form of the chain and depends on the power and bargaining position of actors, information asymmetry between chain stages and also the production technology used. Although inclusion in global value chains often brings a larger share of value added to developing country producers (Nadvi 2004), prices in Western markets do not automatically translate into prices for developing country suppliers. Differences in market power and dependency relationships have a clear influence on the (choice of) governance regime in trade relationships. A powerful party can command governance mechanisms (e.g. Schmitz 1999). In this regard, smallholder producers depend in various cases on downstream parties in the chain, such as intermediaries, transporters /exporters, for input supplies and credits on the one hand and market access on the other.

2.2 Market and Marketing Concepts

Palmer (2000) considers that there are several ways that marketing can be defined, which primarily revolve around satisfying customers ‟needs as part of an exchange process. For example, the Chartered Institute of Marketing defines marketing as, “the management process which identifies, anticipates and supplies customer requirements efficiently and profitably” (Palmer, 2000:3). According to American Marketing Association (AMA)

marketing is, “the process of planning and executing the conception, pricing, promotion and distribution of ideas, goods, and services to create exchanges that satisfy individual and organizational objectives” (Lamb, et al., 2008:4).

Backman and Davidson (1962) and Andargachew (1990) defined the term market as a place or within which price-making force operates and exchanges of title tend to be accompanied by the actual movement of the goods affected. The concept of exchange and relationships lead to the idea of market. It is the set of the actual and potential buyers of a product (Kotler and Armstong, 2003). A market can be described as simple arrangements to facilitate exchange of one thing for another (Bain and Howells, 1988). The most apparent features of a market are its pricing and exchange processes and it is more than a physical place. No need to meet physically for a market to operate specially in today’s information and communication technologies.

Marketing is the performance of all business activities involved in the flow of goods and services from the point of initial agricultural production until they are in the hands of ultimate consumers. Generally marketing is all those business activities associated with the flow of goods and services from production to consumption. The marketing of agricultural products begins at the farm when the farmer plans his production to meet specific demand and market prospects (Abbot and Makeham, 1981).

Marketing is usually seen as a “system” because it comprises several, usually stable, interrelated structures that, along with production, distribution, and consumption, underpin the economic process (Mendoza, 1995).

Marketing is also defined as an activity, set of institutions, and processes of creating, communicating, delivering, and exchanging goods and services that have value for customers, consumers and society at large. It provides the strategy that underlies sales practices, business communication, and business developments; hence, it is an integrated process by which companies build and develop strong customer relationships and create value for their customers and for themselves (Kotler, 2008).

The significance of marketing should not be over emphasized. It is a basic function of any company as Drucker (1973, cited in Wilson and Gilligan, 1998) defined marketing as a

basic function that it cannot be considered as a separate function from production or personnel function of an organization. It is a fundamental dimension of the whole business from the point of view of its customers who buy the products. One crucial element from the definition of marketing by AMA is that the goals of companies and individual consumers need to be satisfied. As a result marketing must be a continuous process since the needs and wants of consumers for goods and services are ever changing over time. Producers must keep their eyes and minds open and should be alert to the changing customers' needs.

2.2.1 Value Chain Actors

According to Lunndy et al (2004) market chain actors can be defined as "a people who directly involved in the exchange of goods; and it starts from input suppliers, producers, rural traders or assemblers, processors, urban wholesalers, retailers and consumers."

Lunndy et al (2004) grouped market chain actor into four based on the function they contributed to the market chain system:

(1)Production actors the actors whose roles are directly associated to basic agricultural production, starting from input provision, for elaborating the market chain's product(s). This category can comprise pre-production, production, harvest, or extractive activities.

(2)Post-harvest and processing the actors whose roles are directly linked to post harvest management (cleaning, sorting, and packaging) or processing of primary goods into value added products. These activities may be performed in the hands of individual actors or rural or urban companies, within or outside the territory.

(3) Trading actors: the actors whose tasks are connected to the buying and selling of the market chain's product(s). Generally, these actors transport the product from the production area to the end markets (as traders), but wholesalers found in urban area can also be included. Various marketing actors can be participated depending on the geographic extension of the market chain under analysis.

(4)Provider of business development services: include individual actors, organizations, or companies that offer business development services to the market chain. The services given by these actors can be tangible (transport, machinery, storage, among others) or intangible

(technical assistance, training, etc.), and formal (NGOs, state agencies, companies, etc.) or informal (transporters, local traders, other farmers, etc.).

Producer

It is principal link in the marketing chain of agricultural products. The producer produces the products and supply to the next agent. From the movement he/she decides what to produce, how to produce, how much to produce, when to produce, and where to sale.

Wholesalers

Wholesalers obtain large quantities of products from producers, store them, and break them down into cases and other smaller units more convenient for retailers to buy, a process called "breaking bulk." Wholesalers get their name from the fact that they resell goods "whole" to other companies without transforming the goods.

Brokers

Brokers, or agents, don't purchase the products they sell (take title to them). Their role is limited to negotiating sales contracts for producers.

Retailers

Retailers buy products from wholesalers, agents, or distributors and then sell them to consumers. Retailers vary by the types of products they sell, their sizes, the prices they charge, the level of service they provide consumers, and the convenience or speed they offer. You are familiar with many of these types of retailers because you have purchased products from them. Ibid

Consumer

It is the last link in the marketing chain. The participants and their respective functions often overlap. The widest spread combinations are: traders- wholesalers that collect the commodity and supply it to retailers, wholesalers-retailers (wholesalers that also sell directly to consumers and wholesalers- exporters).

2.4. Fruit Production and Marketing in Ethiopia

Ethiopia has a variety of fruit crops grown in different agro ecological Zones by small farmers, mainly as a source of income as well as food. The production of fruit varies from cultivating a few plants in the backyards, for home consumption, to large-scale production for the domestic and home markets. According to CSA (2013) 61,972.60 areas under these crops (avocado, bananas, guava, lemons, mangoes, oranges, papayas and pineapples) and more than 4,793,360.64 quintals of fruits were produced in the country. As the report stated that the area covered by fruits production is only a small token area and production in the country. SNNP region has diverse agro ecology and many areas are suitable for growing temperate, subtropical or tropical fruits. Substantial areas receive sufficient rainfall and many lakes, rivers and streams could also be used to support fruit production. According to CSA (2013), the total land area covered by fruits is about 34,299.50 hectares. It is mainly by very small and mainly smallholder based farmers.

Banana: Banana believed to be one of the oldest fruits probably originated in the warm moist tropical Asia. The commercial bananas are classified into 3 species (1) dwarf sp. (2) tall ones, whose fruits are edible raw (3) Musa prasiadica whose fruits are cooked. The banana plant has good height 3.5 to 7.5 m or more, the stem consists of a column of sheathing petioles of spirally arranged dark to yellowish green leaves which are variable in size having an obtuse and entire but easily torn margin. The Plant, a perennial shrub, has large starchy, subterranean rhizome studded with buds. Parthino-carpic fruits are formed on the plant (banana farms report, 2007).

The demand for banana is expected to increase with Population growth, increased income, increased attitude of households in consuming fruits and vegetables as well as the wide opportunity for export in neighboring countries like Europe and the Middle East. Considering these factors, demand for banana in the domestic and export market is conservatively assumed to grow by about 4%, annually. Assuming current demand approximates supply, the projected demand for local consumption, export and the unsatisfied demand. The present demand for the proposed product is estimated at 19,830 tones per annum. The demand is expected to reach at 28,815 tones by the year 2015. (Ibid)

Mango: It is a perennial tree which can live more than fifty years and it is also the leading fruit produced in most parts of eastern and south-western Ethiopia both in area coverage and quantities produced. There are also ample garden mango trees in different parts of the country at farmer's holdings. The livelihood of most of these farmers is highly supplemented by the sale of mango fruits. The area coverage under mango in eastern Ethiopia has reached about 35% of the total acreage allotted for fruit production (Yeshitla, 2004).

According to FAOSTAT (2010) the total cultivated area for mango in Ethiopia is not more than 12, 000 hectares. The highest annual production estimate in the past five years is 180,000 Mt and more area coverage is expected in the south-western and other parts of the country due to more conducive climatic and edaphic factors. According to Yeshitela (2004) even if the farmer's livelihood is highly supplemented by the income from their mango trees, there is a declining trend in yield and quality of mango due to old age, poor management and seedling originated nature of the trees. However, there are exceptionally good yielding trees with best quality fruits. Apart from its economic importance, it is forest and environmentally friendly to fight against drought, use as shade and fire wood.

Papaya (Carica papaya L) –Papaya is the most essential species of others found in genus Carica. Papaya is grown in all tropical countries and in various frosts less sub-tropical regions of the world. Early distribution over wide regions was boosted by abundance of seeds in the fruit and their long viability (three years).

In Ethiopia papaya is produced in home gardens and semi-commercial level by producers as well as commercial level by state farms for home consumption and local market (for fresh fruit and further processing). The commercial farms of upper Awash agro industry such as (Tibila and Awara, Melka farms), and horticulture development enterprise (Ziwa farm) etc…. Many farmers prefer papaya to other fruit crops due to its quick fruit bearing nature and ease of production practices (Jackson, et al, 1985; and IAR, 1991 as cited in Adugna 2009). Papaya trees come in to bearing 9-14 months after planting, then bear year round. The ripe fresh fruit of papaya are eaten fresh all over the tropics and are used in preparation of jam, soft drinks, ice-cream flavoring, and crystallized fruits and in syrup. The seeds are also used for their medicinal value. Unripe fruits and young leaves can be cooked

and taken as vegetables and spinach and the juice facilitate digestion and so that it is preferable for older people.

2.5. Empirical Studies of Value Chain of Agricultural Products

There are an ample number of research had been conducted in the field of market chain of different agricultural commodities and there summary is as follows;

Cormick and Schmitz (2001) have indicated even though firms in a system are formally independent of one another, an increasing network through personal relations and repeated transactions has assisted to inspect and alleviate the chain's core problems by developing their capacity and reducing the cost of the actors.

A study by Beyene and Phillips (2007) have designated that, absences of research and market information in Ethiopian honey value chain have wasted the nation's incalculable benefits. This study was further evidenced by Belay (2003) who stated that, lack of government support such as: inadequate research and training, policies and strategies, have increased knowledge gap among the Ethiopian small scale farmers.

Bezabih (2008) conducted a study on Horticultural value chain in Eastern parts of Ethiopia identified constraints on the chain. The study identified the major marketing constraints such as huge number of middlemen in the marketing system, lack of markets to absorb the production, lack of marketing institutions safeguarding farmers' interest, low price for the products, rights over their marketable produces, imperfect pricing system, lack of coordination among producers to increase their bargaining power, lack of transparency in market information communications and poor product handling and packaging.

A study conducted by Christin (2006), it has been observed that there was a strong correlation between the complexity of the final product and the governance structure and the benefits and entry barriers for smallholders on the other hand. The study finding revealed that the more complex and the higher the quality of the final product, the stronger the relationship between producers and traders become which resulted in more benefits to smallholders producers. Thus, the study concluded that complexity of the final product plays an important role in upgrading smallholder producer.

A study conducted by Adugna (2009) on fruit and vegetables market chain stated that horticultural production in the study area is highly constrained by lack of stable seed supply system, weak extension support, lack of appropriate pre and post-harvest handling, and limited landholding at farmer level followed by weak market linkage and knowledge by the different marketing actors. The study also reported that the presence of brokers in market chain is for the disadvantages of producers' market margin because the brokers isolate the producers from the traders. The study suggested that the government to improving the inefficient market chain through strengthening institutions like cooperatives.

Another study by Ayelech (2011) on fruits market chain analysis reported that the small scaling deduction, quoting of lower prices, lack of market information and deficiency in capital and credit availability are the major problems in the study area.

A study by Abel (2011) on farmers' involvement on value added produce finds out several issues limiting the exploitation and maximization of value-added products. Some of them are growers sold all their produce, and therefore did not see a clear need to become involved in adding value to the remaining produce, lack of resources preventing them from adding value to their foods, the lack of physical facilities to process food, the absence of financial means, sanitary and other requirements are currently impeding many farm operators to fully optimize or maximize their food production. And suggested that the involvement of government to assist different growers to become beneficiary from their produces.

A study by Aoudji et al (2012) on teak poles value chain, the study employed cost accounting and gross profit analysis method for the study and pointed out that the value added on the chain was positive and farmer who grow teak pole has increased their wealth. In addition to this the study also finds out that transportation was the main issue for the value chain efficiency.

A study by Ferdous et al (2012) on fish marketing and value chain reveals that the value chain of fish is long and very complex and the lack of good road and transport networks with the landing (assembling) centers deprives fishery to get fair price. In addition to this, middlemen in the fish marketing chain bear the most cost of marketing while retailers

enjoy the lion's share of the profit. Farmers receive relatively higher share (approximately 70%) of the retail value for all species under study.

A study made by Emily and John (2010) focused on the Banana value chains in Central Africa. The results of the study revealed that, the coordination between and among value chain actors were characterized by weak linkages within the banana value chains with poor integration of value chain actors and minimal involvement with regional markets and high-value domestic chains. Finally, it was recommended that collective marketing, penetration in to high-value chains and improved processing techniques may provide in increasing chain participation.

Chuong (2011) have conducted a study on value chain of white leg shrimp exported to the U.S market. The researcher tried to identify the activities conducted by different actors in the value chain and the corresponding costs and earning of those activities, evaluation of the distribution of revenue, cost and profit and determining factors that protect shrimp farmers from dealing directly with processing firms. He analyzed the date through profitability analysis. The result of the findings showed that before shrimp exported to the U.S market, they have undergone the farming, procurement, and processing. Concerning the distribution of costs, revenue and profit along the chain, the result showed that distribution was in sync with expectations and the research also revealed three basic reasons why farmers dependent on middlemen including lack of facilities, delayed payment policy and risk aversion.

In addition a study made by Juhani (2012) who conducted study on value chain analysis of potato in Tanzania with the objectives of examining the value chain of potatoes, factors that prevent the industry's development and in addition evaluating agricultural policies affecting potato and presenting production and marketing chain in comparison with other crops. The result revealed that the government does not affect much to neither the operation nor the development of the chain and also confirmed that there are no straight policy barriers that are hampering the conditions of smallholders. Regarding the problems, the result revealed that bad seed quality is the major challenge followed by difficulty of getting loans and lack of investments in case of production and poor road network being the biggest infrastructural issue in potato production. Thus, poor seed quality, low access to loans

and poor road network takes an upper hand challenges for farmers in the value chain of potato.

2.6 Conceptual Framework of Fruits

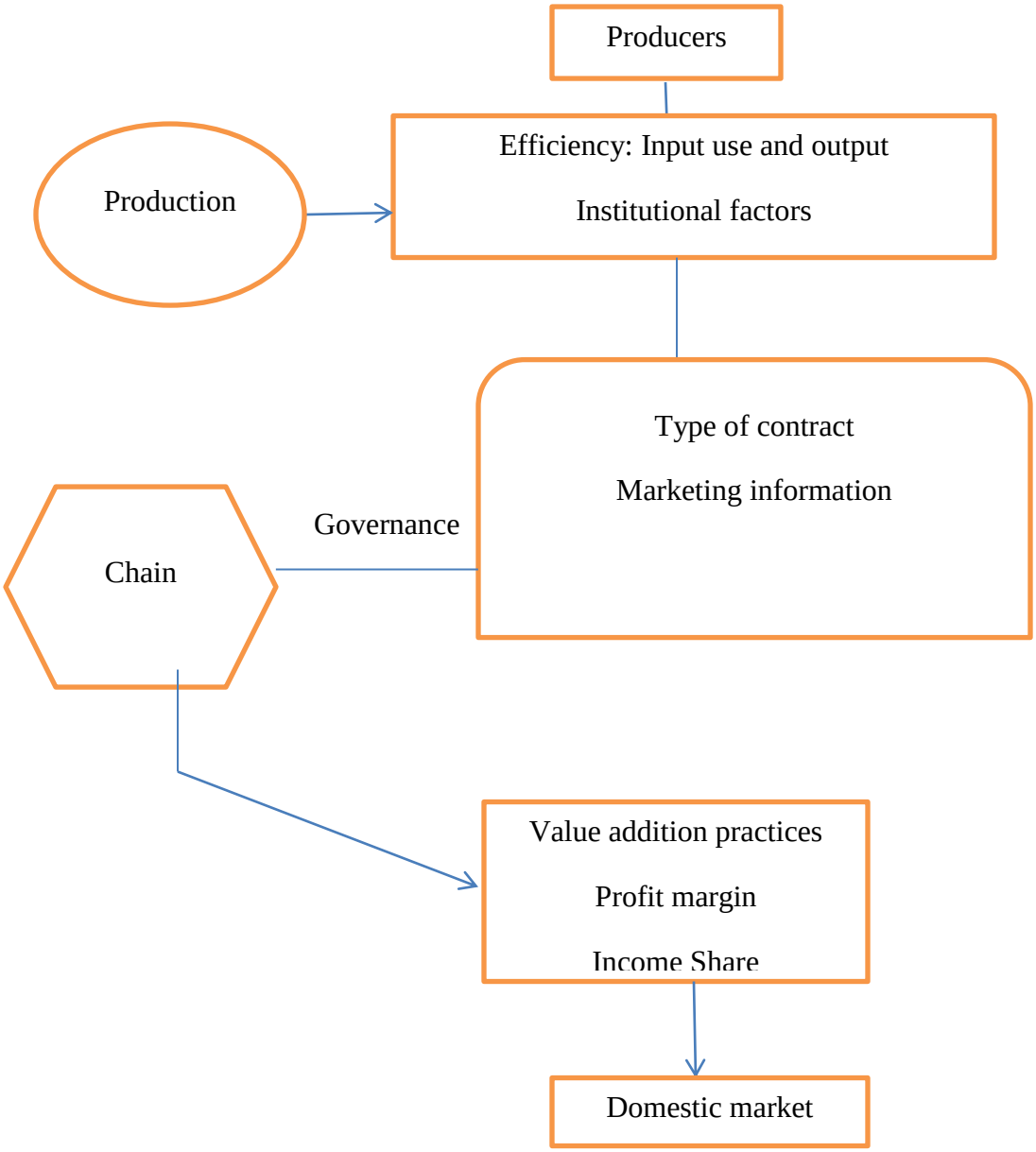

Figure 2.2 conceptual frameworks of fruit producers

Source, partially adopted from Venkatesh (2014)

The identification of challenges related to marketing and involvement of the fruits producers in the value chain is subject to the application of a research framework. Based on theoretical

concepts and empirical studies in fruits sectors, a framework is presented in figure 4. As shown in the figure, the production of fruits is influenced by various factors efficient use and management of resources, physical factors like land, labor and capital. Secondly, the institutional factors having a pioneer role on the production which includes extension and research system, market existence, and storage and transportation network.

Furthermore, the framework helps in understanding the marketing chain process in the value chain of Debub Bench woreda fruits producers. Value chain covers the activities from the stage of fruits harvesting until it reaches the point of consumption. This involves various actors. The major driving factors in the domestic market is the profit margin, value added practices and security of income.

CHAPTER THREE

METHODOLOGY OF THE STUDY

3.1 Description of the Study Area - Bench-Maji Zone

3.1.1 Location and Population

Bench-Maji zone is found in the Southwestern border of Ethiopia in the South Nations, Nationalities and Peoples Region. It is one of the thirteen zones of the SNNP Regional State. The zone is located in 34^{o4}_$45^{1}$to 36^{0}-10^{1} East 5^{0}-40^{1} to 7^{0}-40^{1} North (Bench-Maji Zone Tourism and Communication Bureau Report, 2010). The zonal capital Mizan-Teferi is found 561 Km southwest of Addis Ababa and 850 Km from the regional city, Hawassa. The zone is bordered in north by Shäka Zone and Gambella Regional State, the South Sudan in the west and the south border, in the northeast by Kaffa Zone, and in the southeast and east by the South Omo Zone (Awoke, 2007:99). The zone has one municipality and ten Woredas which are divided in to 240 kebeles. The zone is situated in 193, 266 square Kilometer area of land (Bench-Maji Zone Tourism and Communication Bureau Report, 2010).

According to the 2007 census, the population of Bench-Maji Zone is 659,046 (CSA, 2008). However, in the reality on the ground, the population is rising from time to time due to high in migration. The same source shows that, of the total population of the zone 582,198 and 76,848 people dwell in rural and urban areas respectively. CSA, in its projection of 2010, estimated the population of the zone would be 700,812 (Ibid).

Agro-ecology and Economy

The data from the Zone Rural Development Office (RDO) shows that the Zone has a total area of 1,932,659 hectares. Of which 35,761 covered with crops of perineum fruit and coffee, and 138,917 ha by annual plantation, 79,248 ha for grazing, 135,000 ha not suitable for farming, 335,030 is bushes and shrubs, 478,269 appropriate for farming. Other than the land covered with bushes and shrubs, 550,308 ha of land is covered with natural forest packed with giant trees. Of all the land179, 239 ha are taken by investors.

Bench-Maji Zone has three ecological zones; 52% lowland (Kolla), 45% medium altitude (Woynadega) and 5% highland (dega). Annual rainfall of the zone ranges from 400-2000mm.The temperature varies as of the agro-ecological zones from 15-27co (BMZRDB Report, 2010). Agricultural seasons of the zone are two-Meher and Belg. Meher is a rainy season which ranges from June – September and belg from February–April. The bulk of the farming is done during Meher.

The economy of the zone is based on hoe and plough-based cultivation, labor extensive agriculture and agro-pastoral livelihoods. This assertion is substantiated by the earnings of the zone. 93% of the income of the zone is from crops and only7% from livestock products. Bench-Maji Zone depends on mixed farming of cash crops and cereal. Of these, cash crop production generates the lion's share (BMZRDB, 2010).

3.2 Study Design

This study employed a descriptive type of research design. According to (Zikmund and Carr 2003. 55) descriptive research tries to "paint a picture" of a given situation by addressing who, what, when, where, and how questions. Therefore, the study described the existing value chain situation of banana, mango, and papaya fruits in Debub Bench Woreda, Bench Maji Zone. These fruits had taken a high proportion in production capacity within the descripted area. That's why the researcher selected only these three fruits.

3.3 Data Type

According to Kothari (2004, 3), "*Quantitative research is based on the measurement of quantity or amount. It is applicable to phenomena that can be expressed in terms of quantity. Qualitative research, on the other hand, is concerned with qualitative phenomenon, i.e., phenomena relating to or involving quality or kind"*. Therefore, for this study, the researcher used both quantitative and qualitative types of data. Quantitative data were regarding the value addition and value distribution of the value chain while qualitative data were related to the value chain activities, the role and integration of actors, and the challenges and opportunities of fruit marketing.

3.5 Sources of Data

The study was a blend of both primary and secondary sources of data. The primary data were collected by using questionnaire and focus group discussion with key informants from the value chain actors, starting from fruit producers up to the retailers. The secondary data were from published and unpublished reports of different level of agricultural bureau (country, regional and zonal, woreda, and kebeles), report of CSA (central statistical agency), websites and different published articles.

3.6 Sampling and Sampling Technique

For this study, in order to select a representative sample a multi-stage random sampling technique were implemented to select fruits producer kebelles and sample farm households. In the first stage, with the consultation of Woreda agricultural experts and development agents, Debub Bench Woreda was selected and 26 kebelles were found in the Woreda. In the second stage, out of 26 kebelles in the Woreda 3 fruits producer kebelles were purposively selected based on the volume of fruits production, accessibility and communication. In the third stage, using the household list of the sampled kebelles 182 sample farmers were selected randomly based on proportional to the population size of the selected kebelles (Table 3.1). The next step was determining the actual sample size. The sample size was determined based on the following simplified formula (Yemane, 1967).

$$n = \frac{N}{1 + N(e)^2}$$

Where, **n** is number of respondent farmers,

N is the total number of fruits farmers,

e is the precision level. A 95% confidence level was taken and e= 0.05,

Then $n = \frac{333}{1+333(0.05)2} = \frac{333}{1.8325} = 182\ farmers$

The total sample size of farmers based on the above sample size determination was 182.

Table 3.1, the total population of the Woreda and their sample size

Name of Woreda	Number of households participating in fruits production	Sampled fruit producers
Janchu	137	75
Fanka	112	61
Kiete	84	46
Total population	**333**	182

Source: DBOARD (2014)

Traders / distributors

For these groups of respondents, the researcher employed simple random sampling. The total populations of the Woreda were 22 (wholesaler were 12, Collector 4 and Retailers were 6).

Table 3.3 shows us the total population from the woreda

Traders	Debub Bench woreda	Sample traders
Wholesaler	12	11
Collector	4	4
Retailer	6	5
Total	22	20

Source: Gibiyit and Hibretsira (2014)

3.7 Methods of Data Collection

For this study, both questionnaire and focus group discussion were used. The questionnaire was designed for both producers and for traders/distributors. The structure of the questionnaire was designed as both open ended and close ended. The close ended questions was designed as YES/NO, list (select any answer) and it was coded and open ended questions has allowed the respondent to freely discuss their idea. The next stage after questionnaire design was the translation into Amharic language. In addition to the questionnaire, focus group discussion was held with model fruit producers based on their production capacity and

with some traders/distributors. This discussion was used to supplement, to increase the reliability and validity of the questionnaire response. For ease collection of the necessary data the researcher employed 4 enumerators who have a diploma from college and works as development agent in agricultural bureau from the area. Then, the researcher had given them the appropriate lesson for how to collect the necessary data for only three days.

3.8 Method of Data Analysis and Interpretation

After collection to analyze the researcher used descriptive statistics such as (*The sum, mean, percentages, frequency, table and profitability analysis etc. are the simple statistical measures employed to examine the value chain of different fruits),* and *SPSS* (Statistical Package for Social Science) to entry the collected data to computer. Descriptive statistics were used for the demographic characteristics of the respondent's, role of actors and to identify key constraints, opportunities of the selected fruit marketing and for value addition and distribution among the chain.

CHAPTER FOUR

RESULTS AND DISCUSSIONS

4.1. Socio-Demographic Characteristics of Farming Households

Table 4.1 Demographic profile of sample /responding farmers based on sex

Sex	Frequency	Percent
Female	**3**	**1.65%**
Male	**179**	**98.35%**
Total	**182**	**100%**

Source: Own survey data,2014

As it is shown in Table 4.1, the sex distribution of responding farmers were largely male dominated; i.e., 179 (98.35%) were males and 3 (1.65%) were females. Hence, the majorities of the respondents were male in the selected Woreda. This implies that the participation of women in fruits cultivation was very low; this might be related with the culture and belief of the society.

Age of the respondents

The survey on this major demographic factor, measured in years, provided a clue on working ages of households. The average age of the sample households was 38.5 years, with a range of 68 years where largest proportions of the household head lie within a productive age; i.e. (amid of 15 and 64 years). The survey result further indicated that 20.8 percent of the producers were youth viz. amid of 18 and 30 years of age whereas 49.2 percent of them were adolescent (amid of 30 and 50 years). This implies that aged households were supposed to be wise in resource use, and it is expected to have a positive effect on production and market participation.

Table 4.2 Martial status of responding/sample farmers

Marital status	Frequency	Percent
Married	142	78
Single	20	10.98
Divorced	11	6.04
Widowed	9	4.9
Total	182	100

Source: Own survey data,2014

As it is indicated in the Table 4.2, the marital status of the respondents were dominated by married farmers; i.e., the overwhelming majority of the respondents 142 (78%) were married, followed by widowed and single which accounts for 20(10.98%) and 11(6.04%), respectively, and the remaining 9(4.9%) were divorced. From the table we can understand that the majority respondents were married. This implies that the workload of single individual will reduce by making labor division if they are married and simultaneously it also increases the productivity of an individual.

Table 4.3 Educational level of sample farmers

Educational level	Frequency	Percent
Illiterate	22	12.08%
Can read & write	61	33.51%
Primary	92	50.54%
Secondary	7	3.8%
College diploma & above	0	0%
Total	**182**	**100**

Source: Own survey data,2014

The study has revealed the educational profile of sample respondents as shown in the Table 4.3, that the majority of farmers 22(12.08%) were illiterate, followed by who can read and write and Primary education which accounts to 61(33.51%) and 91(50.54%) respectively, while the remaining educational levels, viz., secondary and College diploma holders were very small in comparison with others 7 (3.8%). Therefore, the majority of the farmer respondents were can write and in primary education. As the educational entitlement

increased the production and marketing of fruits in the study area also increased and also improved the ability to acquire new idea in relation to market information and improved production of the households.

This is in line with result of Ayelech (2011) a study on market chain of fruit in Gomma Woreda, Oromia region, suggested that if fruit producer gets educated the amount of fruit supplied to the market increases, which suggests that education improves level of sales that affects the volume of fruits supplied to the market.

Table 4.4 Family size of the sampled farmers

Kebelles	Freq	Min	Max	Mean	Percentage
Kiete	46	1	8	4.28	25.27
Janchu	75	1	11	5.73	41.21
Fanika	61	1	13	6.06	33.52
Total	182				100

Source: Own survey data,2014

With respect to the family size of the respondents, as depicted in Table 4.4, the average family size in Keite kebelle were 4.28, 5.73 in Janchu kebelle and 6.06 in Fanika kebelle. The highest family sizes were found in Fanika and Janchu kebelles. The existence of high family size will have a positive impact on the volume of fruits production and marketing and it reduces the labor cost.

4.2 AREA INFORMATION

Table 4.5 distance of neareset market of the sample farmers in K.M

Kebelles	Resp	Min	Max	Mean	Percentage
Kiete	46	0.2	1.5	0.682	25.27
Janchu	75	3	7	4.968	41.21
Fanika	61	2	4	3.284	33.52
Total	182				100

Source: Own survey data,2014

As the table 4.5 shows us the distance of nearest market center for Kiete farmers were a mean of 0.682 k.m, for Janchu a mean of 4.968 k.m and for Fanika farmers a mean of 3.284 km. Thus, we can easily infer that the nearest market center for Janchu farmers had the highest mean value. This implies that the volumes of fruits produced and marketed to the market become reduced and transportation cost become higher when the distance of nearest market is higher.

Table 4.6 distance of main road of the sample farmers in K.M

Kebelles	Resp	Min	Max	Mean	Percentage
Keite	46	0.2	0.8	0.366	25.27
Janchu	75	0.6	1	0.741	41.21
Fanika	61	0.5	0.9	0.627	33.52
Total	182				100

Source: Own survey data,2014

As depicted in the table 4.6 the location of main road from the farm place in Keite kebelle had a mean value of 0.366 km, Janchu a mean of 0.741 km and for Fanika farmers had a mean of 0.627 km. Therefore, we can understand that the main road location was really far

for Janchu and Fanika farmers. This means as the distance of main road increases the volume of fruits transported to market become decreases and transportation cost becomes higher.

Table 4.7 Demographic characteristics of traders

Demographic Characteristics	**Description**	**Frequency**	**Percentage**
Sex	Male	17	85
	Female	3	15
	Total	20	100
Martial status	Married	14	70
	Single	2	10
	Divorced	4	20
	Widowed	0	0.0
	Total	20	100
Educational level	Illiterate	2	10
	Can read and write	3	15
	Primary	6	30
	Secondary	9	45
	College diploma	0	0.0
	Total	20	100
Experience in fruit trading (yrs)		Min = 1 Max = 7 average=4.30	

Source: Own survey data,2014

As it is portrayed in Table 4.7 of the demographic characteristics of traders, almost all sampled traders were dominated by males; i.e., 17 (87.5%) and the remaining 3 (15%) were females. This implies that women's participation in fruits trading was minimal. The age composition of traders was between the age group 18 to 65 which is the productive age group. This age group was also similar with farmer respondents' results with 85%. This

implies that all respondents were able to use resource wisely. Regarding marital status of the traders, the majorities 14 (70%) of the traders were married, 2 (10%) were single and the rest 4 (20%) of sample respondents were divorced. It implies that when traders get married their labor cost for sales will increase. And the educational level of traders result shows that 2 (10%) were illiterate, 3 (15%) were can read and write, 6 (30%) were primary school and the left 9 (45%) were secondary school, this means as the educational entitlement increased the ability to acquire new idea in relation to market information and new technologies become increased. Furthermore, sampled traders had a minimum and maximum of 1 and 7 years respectively, and a mean of 4.30 experiences in fruit trading. This implies that, there is no barrier to entry in fruits trade with respect to years of experience.

4.3 Market Participants and Their Roles

In this study, different banana, mango and papaya market participants were identified in the exchange functions between farmer and final consumer. Market participants in the study areas include: producer, local collectors, wholesalers, retailers and final consumers of the product. Even though, each participant was involved in different activities (wholesale, retail, assembly etc.), based on major activities undertaken, the sampled market participants were categorized into different categories.

Producers: These are the primary or first link actors who cultivate and supply banana, mango and papaya to the market. The land for the aforementioned produces was on its own plot to produce the already stated crops. Since the commodities are very perishable in nature, producers sell their produce right after harvest either at Woreda market and/or other market.

Local collectors: These are farmers or part time traders in assembly markets who collect Banana, mango and papaya from producers in village markets for the purpose of reselling it to wholesalers or retailers in Jimma market. They have direct contact with farmers and spent majority of their time in searching of fruits. They use their financial resources and their local knowledge to bulk banana, mango and papaya from the surrounding area. They play significant role and they do know areas of surplus well. They often receive cash from wholesalers after or before sell.

Wholesalers: These are well-known for purchase of bulky commodities with better financial and information capability. They purchase banana, mango and papaya either directly from farmer or Local collectors. They buy and consign large amount of banana, mango and papaya to the Jimma market.

Retailers: Are known for their limited capacity of procuring and handling produces with low financial and information capability. In addition, these are the final actors in the market chain that buy and deliver banana, mango and papaya to consumers.

Consumers: consumers think that if the chain becomes shorter and shorter the price will be reduced. Consumers for this specific study mean those family units who bought and consume banana, mango and papaya. They are individual family unit; they bought the products for their own consumption.

4.4 Marketing Channels

The banana, mango and papaya market channels, depicted below, were constructed based on the data collected in two markets. The result revealed that there are 5 major marketing channels for each banana, mango and papaya fruits respectively which is obtained from traders' survey. The estimated volume of production of banana was about 51,211 quintals; the corresponding figure for mango was 19,364 quintals and 10,181 quintals of papaya in the year 2005 E.C from which about 49,674, 18,387 and 9,764 quintals of banana, mango and papaya were sold respectively. Each followed their own channels, they are treated separately, and the result obtained was the following (Source, DBOARD, 2014).

4.4.1 Market Channel for Banana

Five marketing channel are identified for banana; from these five channel only one channel is for internal market and the remaining are gone out of the region. The channel comparison was made based on volume of fruits that passed through each channel. Accordingly, the Producer-Wholesaler-Retailer market channel carried the largest volume i.e. 17843qt of banana which is 35.92 percent of the total volume followed by Producer-Local collector-Wholesaler-Retailer-Consumer channel which carried a total volume of 13624qt of banana and is about 27.42 percent of the total banana marketed (Fig 4.1)

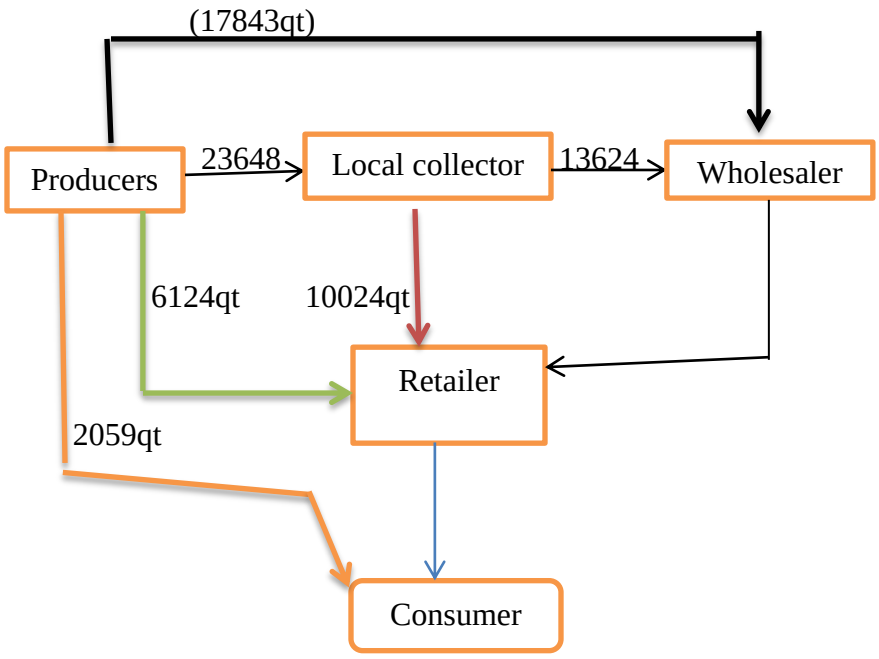

Figure 4.1 market channel alternatives for banana marketed in Debub bench woreda

I. Producers -Local collector-Wholesaler-Retailer-Consumer: - this channel represented 27.42% of total banana marketed in the area and this is the second in terms of total volume marketed and longest market channel.

II. Producers-Local collector-Retailer-Consumer: - this channel accounted for 20.17% of the total marketed banana in the area and this is the third in terms of total volume marketed.

III. Producers-Wholesaler-Retailer-Consumer: - this channel accounted 35.92% of the total banana marketed in the area and it covers the first in terms of total volume marketed in the study area.

IV. Producers-Retailer-Consumer: - the channel represented 12.32% from the total banana marketed in the area. This is the least market channel in terms of total volume marketed and the second shortest market channel.

V. Producers-Consumer: - this market channel accounted 4.14% of banana from the total banana marketed in the study area and the first shortest channel in the study area.

4.4.2 Mango Market Channel

Five marketing channels are exhibited in the study areas where all channels remained in the region except the one channel. According to the report, Producer-wholesaler-Retailer-consumer channel procured largest volume of fruits (39.74 percent) followed by Producer-Local collector-Wholesaler-Retailer-Consumer channel which accounted for 25.21 percent of the total mango marketed from the market. The volume that passed through Producer-Wholesaler-Retailer-Consumer channel has the most important since it accounted the largest marketed volume (39.74%).

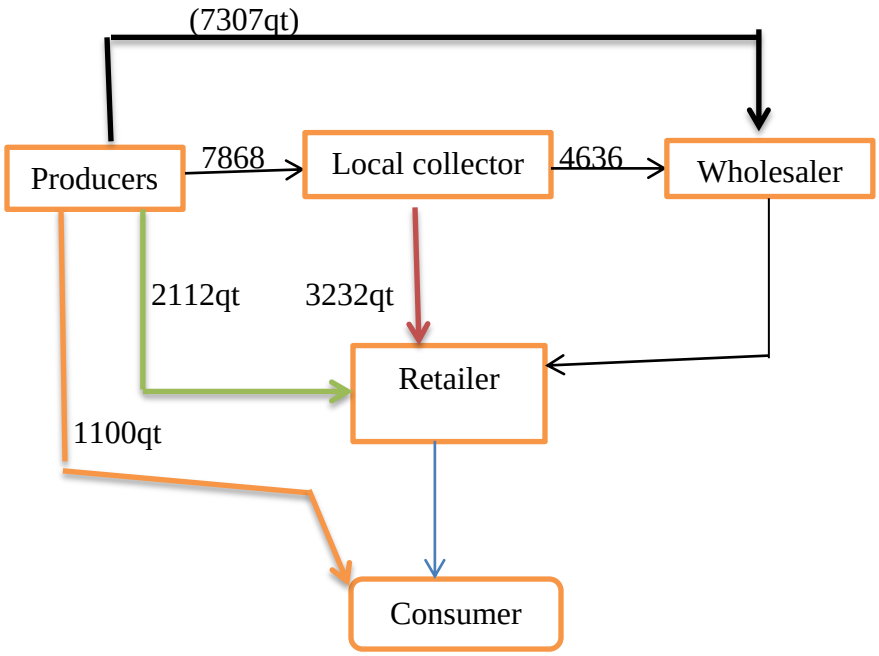

Figure 4.2 Market channel for mango fruit marketed in Debub Bench Woreda

I. Producers -Local collector-Wholesaler-Retailer-Consumer: - this channel represented **25.21**% of total mango marketed in the area and this is the second in terms of total volume marketed and longest market channel.

II. Producers-Local collector-Retailer-Consumer: - this channel accounted for 17.57% of the total marketed mango in the area and this is the third in terms of total volume.

III. Producers-Wholesaler-Retailer-Consumer: - this channel accounted 39.74% of the total mango marketed in the area and it covers the first in terms of total volume in the study area.

IV. Producers-Retailer-Consumer: - the channel represented 11.48% from the total mango marketed in the area. This is the least market channel and the second shortest market channel

V. Producers-Consumer: - this market channel accounted 5.9% of mango from the total mango marketed in the study area and the first shortest channel in the study area.

4.4.3 Papaya Market Channel

This fruit has the same market channel with mango product, this is how in the study area there is no banana juice maker but for these two (mango and papaya) fruits there are juice maker.

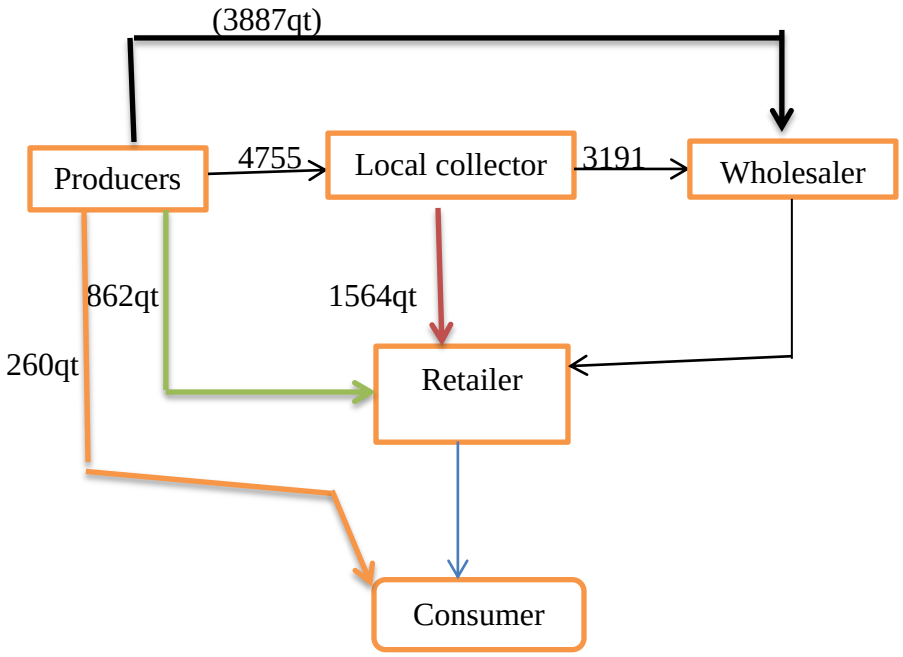

Figure 4.3 market channels for papaya marketed in Debub Bench woreda

I. Producers -Local collector-Wholesaler-Retailer-Consumer: - this channel represented 32.68% of total papaya marketed in the area and this is the second in terms of volume and longest market channel.

II. Producers-Local collector-Retailer-Consumer: - this channel accounted for 16.02% of the total marketed papaya in the area and this is the third in terms of volume.

III. Producers-Wholesaler-Retailer-Consumer: - this channel accounted 39.81% of the total papaya marketed in the area and it covers the first in terms of volume in the study area.

IV. Producers-Retailer-Consumer: - the channel represented 8.83% from the total banana marketed in the area. This is the least market channel and the second shortest market channel

V. Producers-Consumer: - this market channel accounted 2.66% of banana from the total banana marketed in the study area and the first shortest channel in the study area.

4.5 Production Variety of Fruits

Table 4.8 Proportions of sample farmers growing fruits variety

Types of Fruits	Frequency	Percent
Banana	62	34.06
Mango	60	32.97
Papaya	60	32.97
Total	182	100

Source: Own Survey Data,2014

Different types of fruit variety were used by farmers in the study area. These include Banana, Mango and Papaya. As it is depicted in Table 4.8 that Banana was the dominant one used by 62 (34.07%) of sampled respondents farmer followed by Mango 60 (32.97%) and the remaining papaya accounts 60 (32.97%). From this finding, we can observe that most of the respondent farmers used variety; the reasons for using variety were for diversifying the source of income and productive while comparing with other types.

4.6 Descriptive Analysis of Fruit Production, Consumption and Marketing

Table 4.9 Total production of fruits in sample farmers

Types of Fruits	Resp	Production in quintal.	Percentage
Banana	62	51221	63.42
Mango	60	19364	23.97
Papaya	60	10181	12.6
Total	182	80766	100

Source: DBOARD,2014

As the table 4.9 shows that, banana production has taken a major share in the study area with 63.42% from the total production of fruits. The second highest share was covered by mango production in the study area with 23.97% from the total production of fruits and the remaining 12.6% was covered by papaya production. Therefore, banana was highly produced in the study area.

Table 4.10 total Consumption of fruits by (qtls) in woreda

Types of Fruits	Resp	Total Consumption in woreda	Percentage
Banana	62	**1547**	**52.6**
Mango	60	**977**	**33.22**
Papaya	60	**417**	**14.18**
Total	182	**2941**	**100**

Source: Own Survey Data,2014

As portrayed in Table 4.10, banana consumption rate was the highest in the study area with 52.6%, mango consumption rate was the second highest share with (33.22%) and the rest 14.18% of consumption share was covered by papaya fruits. Hence, we can understand that banana consumption rate was the highest in the study area followed by mango.

Table 4.11 Supply of fruit in the study area in quintals

Types of Fruits	Respondents	Supply of fruit	Percentage
Banana	**62**	**49674**	**63.83**
Mango	**60**	**18387**	**23.63**
Papaya	**90**	**9764**	**12.54**
Total	**182**	**77825**	**100**

Source: DBOARD,2014

As it is calculated in the table 4.11, from the total fruits supplied to the market banana takes the highest share with 63.83% followed by mango fruit with 23.63% and the remaining 12.54% of share was covered by papaya fruit.

Table 4.12 Trader responses from whom they buy and to whom they sell fruits

Table 4.12 Local collector response

From whom they buy	**Freq**	**%**		**To whom do you sell fruits**	**Freq**	**%**
Farmers	**4**	**100**		**Wholesaler**	**3**	**75**
				Retailer	**1**	**25**
Total	**4**	**100**		**Total**	**4**	**100**

Source: own survey 2014

As the above table 4.12 depicted, all local collectors bought fruits from farmers and 75 % of local collectors sold their fruits for wholesalers and the remaining 25% of fruits were sold for retailers. Hence, we can observe that local collectors sold their fruits for wholesalers and retailers only. This implies that local collectors do not have any relationship with consumers.

Table 4.13 Wholesalers

From whom they buy	Freq	%		To whom do you sell fruits	Freq	%
Farmers	7	63.64		Retailer	11	72.73
Local collectors	4	36.36				
Total	11	100		Total	11	100

Source: own survey 2014

As the above table 4.13 represented, 7 (63.64%) of wholesalers bought fruits from farmers and 4 (36.36%) of wholesalers buy from local collectors and all 11 (100%) of wholesalers sold fruits for retailers. Therefore, we can understand that all wholesalers sold fruits for retailers. It implies that more fruits for consumers were going through retailers and it increases the consumer price.

Table 4.14 Retailers response

From whom they buy	Freq	%		To whom do you sell fruits	Freq	%
Farmers	1	20				
Local collectors	2	40				
Wholesalers	2	40		Consumers	5	100
Total	5	100		Total	5	100

Source: own survey 2014

Table 4.14 represented that 2 (40%) of retailers bought fruits from local collectors, 2 (40%) from wholesalers and 1 (20%) from farmers and all retailers sold fruits for consumers. This implies that the highest volumes of fruits marketed to retailers come through wholesalers and local collectors.

4.7 Fruit Price Fluctuations and Pricing

Table 4.15 Farmers' response for the unexpected price offer

unexpected price offer	**Frequency**	**Percent**
Took back home	0	**0**
Took to another market on the same day	45	**24.72**
Sold at lower price	112	**61.54**
Sold on other market day	25	**13.74**
Total	**182**	**100**

Source: Own survey data, 2014

As it is shown in the above table 4.15, 112 (61.54%) of farmers responded that they sold at lower price when unexpected price was offered by traders or consumers, 45 (24.72%) of farmers sold their fruits by taking to another market on the same day and the remaining 13.74% of farmers sold on other market day when unexpected price was offered. Therefore, we can understand that the majority of the farmers sold at lower price when unexpected price was offered by other chain actors.

4.7.1. Fruit Pricing Mechanisms

Table 4.16 Farmers' response on Price setting and terms of payment

Price setter	**Frequency**	**Percent**
Myself	1	0.54
Buyers	164	90.11
Set by demand and supply	4	2.2
Negotiation	13	7.14
Total	182	100

Source: Own survey data, 2014

The assessment indicated in table 4.16, among all respondents, 90.11% of the farmers have reported as they don't negotiate on price to sell their produce; indicating this large amount of producers were price takers and buyers set the price, 7.14 % of farmers set price by negotiation and 2.2% by demand and supply. Hence, we can understand that fruits producers were simply price taker and traders were piece maker.

Table 4.17 Farmers' response on time of price setting

Time for Price setting	Frequency	Percent
Set at time of advance given	11	6.04
At time of delivery	145	79.67
Negotiated at delivery	26	14.29
Total	182	100

Source: Own survey result, 2014

The study indicated in table 4.17 that among all respondents, 145 (79.67%) of the farmers have reported that they set price at the time of delivery, 26 (14.29%) of farmers responded that they set price by negotiating at delivery and the remaining farmers set price in advance. This result was triangulated by discussing with farmers and they responded that mostly the price was set at time of delivery. This was due to that traders set price by considering the quality and quantity of fruits.

Concerning the agreement if the price was stated in advance, most of the farmers reported that they agreed orally with traders without any written documents.

Table 4.18 Farmers' response on mode of payment

Mode of payment system	Frequency	Percent
Cash	85	46.7
Credit	97	53.3
Total	182	100

Source: Own survey result, 2014

Regarding to the mode of payment as it is depicted in the above table 4.18, 85 (46.7%) of farmers responded that mode of payment was made by cash and 97 (53.3%) of farmers responded that the mode of payment was credit. Accordingly, the farmers who gave credit for traders were collecting their money within a week.

Table 4.19 Traders response on evaluation and price of fruits

	Description	**Frequency**	**Percentage**
Current price	Cheap	0	0
	Medium	4	20
	Expensive	16	80
	Total	**20**	**100**
Mechanisms to fix price	Labor and other costs	6	30
	Supply and Demand	2	10
	Quality of fruits	4	20
	Quantity of fruits	8	40
	Origin of fruits	0	0
	Total	**20**	**100**

Source: Own survey result, 2014

From the study, as the above Table 4.19 shown , among the 20 trader respondents 16 (80%) of them responded that the current market price of fruit is expensive and the rest 4 (20%) of them said that it is medium as compared to the last year market price of fruits.

Accordingly, the table also shows how the traders fix price. From the total traders 8 (40%) of them set price based on the quantity of fruits, 6 (30%) of them set by considering labor and other costs, 4 (20%) of them set price through the quality of fruits and the remaining 2(10%) of them set price by considering the demand and supply.

In general, from the study we can understand that the current market price of fruit in the study area was expensive in comparison with last year and most traders also used quantity and other costs to fix the price of fruits.

4.8 Fruit Production and Marketing Activities

4.8.1 Fruit production activities

Table 4.20 Production experience of farmer's respondents

Experience	Frequency	Percent
1-5 years	112	61.53
6-10 years	46	25.27
11-15 years	16	8.79
> 16 years	8	4.39
Total	**182**	**100**

Source: Own survey data, 2014

From the Table 4.20, we can observe that 112 (61.58 percent) of the respondent have said they had an experience of 1-5 years in the production of fruit followed by 46 (25.27%) who had an experience of 6-10. The remaining 16 (8.76 percent) and 8 (4.39 percent) of the sampled farmers respondents had an experience of 11-15 and above 16 years of experience in the production of fruit in the study area respectively. This means the majority of fruit producers had experience of 1-10 years.

Table 4.21 Fruit production mechanisms response of farmers

Fruit growing	Frequency	Percent
Intercrop	182	**100**
Sole crop	0	**0**
Total	**182**	**100**

Source: Own survey data, 2014

As it is depicted in the Table 4.21, the sample respondents responded that 182 (100%) all were producing fruit by inter cropping with coffee, maize and others short cycled products. We can easily understand that fruits were cropped with other products.

4.8.2 Fruit Marketing Activities

Table 4.22 banana marketing calendar

Main activity	**Marketing time**	**Low price time**	**Medium price Time**	**High price Time**
Sep	-	-	-	27 (14.84%)
Oct	-	-	-	25 (13.74%)
Nov	-	-	-	-
Dec	06 (3.29%)	15 (8.24%)	-	-
Jan	11 (6.04%)	31 (17.03%)	-	-
Feb	24 (13.19%)	58 (31.87%)	-	-
Mar	43 (23.63%)	63 (34.61%)	-	-
Apr	54 (29.67%)	15 (8.24%)	-	-
May	32 (17.58%)	-	116 (63.74%)	-
Jun	13 (7.14%)	-	66 (36.26%)	-
July	-	-	-	55 (30.22%)
August	-	-	-	75 (41.21%)

Source: own survey 2014

In accordance with the above mentioned table 4.22, regarding the marketing time of banana fruits 54 (29.67%) of farmers said that April was the time for banana marketing, 43 (23.63%) of farmers responded March, 32 (17.58%) of farmers answered May, 11 (6.04%) of farmers respond February, and 13 (7.14%), 11 (6.04%) and 06 (3.29%) answered June, January and December, respectively. Concerning of the low price, the majorities of farmers respond that on February and March banana price become low, May and June were the time for banana price become medium and starting from July up to October banana price become higher.

Table 4.23 mango marketing calendar

Main activity	**Marketing time**	**Low price time**	**Medium price Time**	**High price Time**
Sep	-	-	-	-
Oct	-	-	-	-
Nov	-	-	-	-
Dec	-	-	-	-
Jan	-	-	-	-
Feb	-	-	-	-
Mar	20 (10.98%)	-	66 (32.26%)	-
Apr	29 (15.93%)	-	116 (63.74%)	-
May	73 (40.2%)	113 (62.1%)	-	-
Jun	60 (32.96%)	69 (37.9%)	-	-
July	-	-	-	124 (68.13%)
August	-	-	-	58 (31.87%)

Source: Own survey data, 2014

As it is depicted in Table 4.23 the result shown that, the main mango marketing months were March with 20 (10.98%) of the respondents, April with 29 (15.93%) of the respondents, May with 73 (40.2%) and June with 60(32.96%) of the respondents. Hence, from the result we can understand that March, April, May and June were the months of mango marketing time. In addition, the table shows the low price time these were 113 (62.1%) of the respondents said May was the lowest price for mango fruits and 69 (37.9%) of the respondents responded that June was the low price time for mango fruit, the medium price time was from March to April with 66 (32.26%) and 116 (63.74%), respectively, and the high price time starts from July to August with 124 (68.13%) and 58 (31.87%) ,respectively. Therefore, the low price time was from May to June and the high price time was July and August.

Table 4.24 papaya marketing calendar

Main activity	**Marketing time**	**Low price time**	**Medium price Time**	**High price Time**
Sep	-	-	-	-
Oct	-	-	-	123 (67.58%)
Nov	-	-	-	59 (32.42%)
Dec	26 (14.28%)	-	-	-
Jan	41 (22.53%)	56 (30.77%)	-	-
Feb	48 (26.37%)	67 (36.81%)	-	-
Mar	55 (30.22%)	59 (32.425)	-	-
Apr	12 (6.59%)	-	75 (41.22%)	-
May	-	-	57 (31.32%)	-
Jun	-	-	50 (27.47%)	-
July	-	-	-	-
August	-	-	-	-

Source: own survey (2014)

In accordance with the above mentioned table 4.24, regarding the marketing time of papaya fruit the majorities of farmers responded that papaya marketing time starts from December up to April, low price time of papaya fruit starts from January up to March, medium price time starts from April up to June and the high price time was October and November. Informally, some farmers said that most of the time papaya fruit price will increase at the time of fasting.

Table 4.25 Sources of fruit seed in study area

Source of fruit seed	Frequency	Percent
Own plant	143	78.57
Agricultural bureau	24	13.18
Market	15	8.24
Total	**182**	**100**

Source: Own survey result, 2014

Fruit farmers in the study area get seed from different sources. As it is depicted in the Table 4.25, the majority of the sample respondents used from own plant and agricultural bureau with 143 (78.57%) and 24 (13.18%), respectively. The remaining proportion of the sampled respondent farmers with 15 (8.24%) obtain fruit seed through buying from market. Therefore, from the findings we can deduce that the majority of the respondent farmers obtain seed through buying from market and from their own plant. It implies that the vertical coordination of farmers from input supplier was weak and it may affect the quality of fruits supplied to market.

Table 4.26 farmers' response on the use of inputs such as fertilizer and pesticides

Fruit growing	Frequency	Percent
Yes	0	0
No	182	100
Total	182	100

Source: Own survey result, 2014

As it is portrayed in the Table 4.26, among the 182 responding farmers, all of them did not used inputs like fertilizers and pesticides for the production of fruit. This implies that the soil by itself was fertile and they do not used inputs such as fertilizers and pesticides for fruits production.

Table 4.27 farmers' response on learning fruit cultivation

Learning fruit cultivation	Frequency	Percent
Family	74	40.65
Training from DA	0	0
Through education	11	6.04
Learning by doing	97	53.29
Total	**182**	**100**

Source: Own survey result, 2014

The study has assessed how farmers are learning about fruit cultivation; the overall picture of the respondent farmers is portrayed in Table 4.27. Among the 182 farmers, 73 (40.65%) of the respondents revealed that they learnt fruit cultivation from their family, 11 (6.04%) of the respondents responded that they learnt fruit cultivation through education and the majority of the respondents learn fruit cultivation through learning by doing. This means the support of agricultural experts about fruits production was weak in the study area and it affects the quality of fruits offered to the market.

Table 4.28 labor cost for production

Description	Frequency	Percent
Family labor	114	62.6
Hired labor	49	26.9
Labor exchange	6	3.3
Cooperation	13	7.1
Total	182	100.0

Source: Own Survey Data,2014

Table 4.28 shows that 114 (62.6%) of the respondents used family labor for the production of fruits followed by hired labor with 49 (26.9%) and 13 (7.1%) of farmers used labor by cooperation and the remaining 6 (3.3%) of the farmers used labor by exchanging. Therefore, family labor was the main source of labor in the study area. This means cooperation and labor exchange among farmers were weak.

Table 4.29 Respondents response on frequency of harvest per year

Fruits	Frequency of harvest	Frequency	Percent
Banana	Once	24	38.7
	Twice	38	61.3
	Three times	0	0
	More than three times	0	.0
	Total	**62**	**100**
Mango	Once	60	100
	Twice	0	0
	Three times	0	0
	More than three times	0	0
	Total	**60**	**100**
Papaya	Once	21	35
	Twice	39	65
	Three times	0	0
	More than three times	0	0
	Total	**60**	**100**

Source: Own survey result, 2014

Table 4.29 presents the frequency of fruit harvest per year 24 (38.7%) of the respondents harvest fruit once in a year and 38 (61.3%) harvest twice. Within the same table mango producers also responded that they produced mango only once in a year and papaya producers also responded that 21 (35%) of farmers were producing papaya once in a year and 39 (65%) of farmers were producing papaya twice in a year.

Table 4.30 Farmers response on yields of fruit variety

Response	Frequency	Percent
Yes	125	68.68
No	57	31.32
Total	182	100

Source: Own survey result, 2014

It is observed from the Table 4.30, the larger proportion of the farmers 125 (68.68%) responded that they got enough yields from the fruit variety they have grown last year and the remaining 57 (31.32 %) of them do not get enough yields from the fruit variety they have

grown. From the finding, the smaller proportion of farmers do not get enough yield from the fruit variety they have grown last year and the reason described were poor quality, not enough yields, disease and excess rain at different production time of the year.

Table 4.31 farmers' response on the reason of low yield from fruits grown

Reasons for low yield	Frequency	Percent
Poor quality	27	47.36
Not enough land	0	0
Disease	30	52.64
Excess rain	0	0
Total	**57**	**100**

Source: Own survey result, 2014

Respondents that did not get enough yields from fruit variety they have grown had numerous reasons shown in Table 4.31. Reasons likes disease and poor quality were ranked 1st and 2nd with 30(52.64%) and 27 (47.36%) responses, respectively. Therefore, disease and poor quality were the main problems that hamper farmers not to get enough yields from their product.

Table 4.32 Producers and traders response on different means of transporting fruits

	Farmers		Traders	
Means of transport	**Frequency**	**Percent**	**Frequency**	**Percent**
Donkey /pack animals	44	24.17	0	0
Human labor	84	46.16	3	15
Truck	0	0	12	60
Local carts	54	29.67	5	25
Total	**182**	**100**	**20**	**100**

Source: Own survey result, 2014

As it is depicted in the Table 4.32, 44 (24.17%) of the farmers/respondents used donkey for transporting fruit to the nearby market, 54 (29.67%) who used local carts as a means of transport and the remaining respondent farmers 84 (46.16%) used human back as a means for

transporting fruits to the nearby market. From this we can observe that the majority of farmers' uses human labors for transporting their products to the market due to this most of them were exposed to offer low volume of fruits to the market.

In other way sampled traders were asked on the means of transport to market fruits. And accordingly, as it is shown in Table 4.32, 12 (66.7%) of them use truck while the remaining 3 (15%) and 5 (25%) of them use human back and local cart as a means of transport on fruit marketing, respectively. In general, from the finding we can infer that truck was the dominant means of transport in the study area.

Table 4.33 farmers and traders responses packaging materials

Farmers response				Traders response	
Packaging material	Frequency	Percent		Frequency	Percent
Sacks	145	79.67		18	90
Plastic material	6	3.29		2	10
Traditional	31	17.03			
Total	182	100		20	100

Source own survey (2014)

Table 4.33 shows that the majority of farmers 145 (79.67%) used sacks as a packaging material for fruits and 31(17.03%) of them used traditional local made for packing fruits and the rest 6 (3.29%) used plastic material for packing fruits.

In line with the above response, the majority of traders also used sacks for packing fruits. Therefore we can understand that most of the actors in the chain used sacks as a primary packaging material for fruits.

Table 4.34 farmers' response on purpose of fruit production

	Frequency	Percent
Consumption	5	2.75
Income generation	129	70.87
Improving living standard	48	26.37
Total	**182**	**100**

Source: Own survey result, 2014

Table 4.34 shows the reason why farmers in the study area were producing fruits. As it is depicted on the table 4.33, 129 (70.87%) and 48 (26.37%) of the sampled respondent said that they produce fruit for income generation and improving the living standard of their families while the remaining 5 (2.75%) of them for personal consumption.

Table 4.34 Fruit fluctuations, and reasons

	Description	Frequency	Percentage
Fruit fluctuation	Yes	17	85
	No	3	15
	Total	20	100
Reasons for fluctuations	Price fluctuation	11	55
	Climate change	3	15
	Demand variation	6	30
	Total	20	100

Source: Own survey result, 2014

As it is depicted on Table 4.34, about the fruit fluctuation 17 (85%) of the traders responded that there was a high fruit volume fluctuations and the remaining 3 (15%) of them responded that there was no fruit volume fluctuations at all. 55% of trader respondents that fruits fluctuations were due to price fluctuation, 30% were due to demand variation and the remaining 15% were due to climatic change. Hence, we can observe that price variation has an impact on fruits fluctuation. This means fruits fluctuation was highly influenced by the price offered by the farmers and it affects the production capacity of farmers.

Table 4.35 Farmers' response on knowledge of market price information

Market price	Frequency	Percent
Yes	29	**15.93**
No	153	**84.07**
Total	**182**	**100**

Source: Own survey data, 2014

As it is shown in the above table 4.35, 153 (84.07%) of farmers responded that they did not know the market price to sell their products and 29 (15.93%) of farmers knew the market price to sell their produces. Hence, the majority of the farmers did not know the market price to sell their produces. This means the large portion of market power was taken by traders who have various source of market information.

In supporting this finding a study conducted by Juhani (2012) on potato value chain analysis in Tanzania revealed that smallholders do not get price information and it forces them to take price offered by traders.

Table 4.36 Farmers' response on challenge on searching of buyers

Challenges	Frequency	Percent
Yes	133	**73.08**
No	49	**26.92**
Total	**182**	**100**

Source: Own survey data, 2014

As it is shown in the above table 4.36, 133 (73.08%) of farmers responded that they faced the challenge of searching a buyers and the remaining 49 (26.92%) of farmers did not face the challenge of searching a buyers. Therefore, farmers were in difficulties to sell their products immediately. This implies that farmers' relationship with traders was weak and it affects the volume of fruits offered to market and it increases the storage cost.

Table 4.37 Farmers' response on the reason for the difficulty

Challenges	Frequency	Percent
Inaccessibility of market	98	**53.85**
Low price offered	25	**13.74**
Lack of information	59	**32.42**
Total	**133**	**100**

Source: Own survey data, 2014

As it is shown in the table 4.37, 98 (53.85%) of farmers answered that they faced the difficulty of searching buyers due to inaccessibility of market, 59 (32.42%) were due to lack of information and the remaining 25 (13.74%) of farmers faced difficulties due to the low price offered by the traders. Hence, inaccessibility of market and lack of information were the major challenge for the producers.

Table 4.38 traders' response on road accessibility during the rainy season

Accessibility of market road	frequency	Percent
Difficult	16	80
Easily accessible	4	20
Total	182	100

Source: own survey (2014)

Table 4.38 shows 16 (80%) of traders responded that the market road was difficult for vehicles during the rainy season and the remaining 4 (20%) of traders replied that the market road was easily accessible for vehicles during the rainy season. Hence, we can observe that the road was difficult for vehicles to transporting fruits to the market.

Accordingly, 16 of traders on open ended question about for how many days do the road matters? The average response of the traders was for two days to transport the fruits to the market.

4.9 LINKAGE AMONG VALUE CHAIN ACTORS

4.9.1 Farmers' linkage with value chain actors

Actors	Linkage			Nature			Trust			Frequency		
Farmers	Resp	Freq	%	Response	Fre	%	Response	Freq	%	Response	Freq	%
	Yes	98	53.85	Informal	28	28.57	No trust	2	2.04	Once	10	10.2
	No	84	46.15	Verbal	70	71.43	A little trust	15	15.30	Twice	18	18.36
	Total	182	100	Written	0	0	Some trust	47	47.95	Three times	16	16.33
				Total	98	100	Full trust	34	34.69	Regularly	54	55.1
							Total	98	100	Total	98	100
Consumers	Yes	127	69.78	Informal	56	44.1	No trust	3	2.36	Once	117	94.5
	No	55	30.22	Verbal	71	55.9	A little trust	78	61.42	Twice	7	3.84
	Total	182	100	Written	0	0	Some trust	38	29.92	Three times	3	1.64
				Total	127	100	Full trust	8	6.23	Regularly	0	0
							Total	127	100	Total	127	100
Traders	Yes	158	86.81	Informal	34	19.78	No trust	12	7.59	Once	105	66.46
	No	24	13.19	Verbal	124	80.22	A little trust	76	48.1	Twice	26	16.45
	Total	182	100	Written	0	0	Some trust	61	38.6	Three times	17	10.76
				Total	158	100	Full trust	9	5.69	Regularly	10	6.33
							Total	158	100	Total	158	100

Source: Own survey result, 2014

Table 4.39 presents the linkage, nature of linkage, degree of trust and frequency of contact between farmers and other value chain actors. From the whole respondents, 98 (53.85%) of farmers have linkage with other fruit producers in the study area and 83 (46.15%) of farmers don not have linkage with other fruit producers in the area. Regarding the nature of their relationship from 98 farmers 28 (28.57%) is informal, 70 (71.43%) of their relationship is verbal. Concerning the trust, farmers have on the actor where they make relationships, 2 (2.04%) of them do not have trust on their relationship, 15 (15.30%) of the farmers had a little trust among themselves, 47 (47.95%) of the farmers have some trust among themselves and 34 (34.69%) of the farmers had full trust among themselves. Lastly, in relation to the frequency of how often they meet, the table shows that 10 (10.2) of the farmers met once in a quarter, 18 (18.36%) of the farmers met twice, 16 (16.33%) of the farmers met three times and 54 (55.1%) of the farmers met regularly.

The second row investigates the farmers linkage with consumers which shows that from the total population, 127 (69.78%) of the farmers responded that they do have relationship with consumers and 55 (30.22%) of the farmers do not have relationship with consumers. With regard to the nature of their relationship of the farmers, 127 farmers 56 (44.1%) of the farmers have an informal relationship and 71 (55.9%) of the farmers have verbal relationship with the consumers. In addition to this concerning to their relationship amount of trust, the result showed that 3 (2.36%) of the farmers have no trust with the consumers, 78 (61.42%) of farmers have a little trust on consumers, 38 (29.92%) of farmers have some trust on consumers and the remaining 8 (6.23%) of farmers have full trust on consumers.

The third raw also shows the linkage between farmers and traders, from the total population of farmers 158 (86.81%) of farmers responded that they have relationship with traders and the remaining 24 (13.19%) of farmers do not have relationship with traders. Concerning of their relationship nature 34 (19.78%) of farmers have an informal relationship with traders and 124 (80.22%) of farmers have verbal relationship with traders. At the same time the study also assessed the level of trust farmers developed on traders, the result is 12

(7.59%) of farmers have no trust on traders, 78 (48.1%) of farmers have a little trust on traders, 61 (38,6%) of farmers have some trust on traders and the remaining 9 (5.96 %) of farmers have full trust on traders and regarding to the frequency of how often they meet in a quarter 105 (66.46%) of farmers meet traders only one time in a quarter, 26 (16.45%) of farmers meet traders twice, 17 (10.76%) of farmers meet traders three times and the remaining 10 (6.33%) of farmers meet traders regularly.

To summarize the linkage that respondents farmer have with different value chain actors showed that most of their linkage were restricted to farmers and consumers and the nature of linkage result also showed that verbal and informal agreement were reported to be dominant. Moreover, the trusting relationship result showed that they do have a regular contact with other farmers but with other value chain actors their frequency of linkage was restricted to one time. Hence, we can conclude that linkage among different value chain actors were reported to be minimal.

According to Shiferaw, et al. (2007) the degree of trust and relationship among chain actors depends on the strength of the chain and in conditions like sharing of information is poor and actors performs in ways that demoralize the activities of the others, the chain is under develop and largely inefficient and inequitable.

A study made by Kodigehalli (2011) supports to the finding of this study. The study on value chain of coffee made by Kodigehalli reported that, coffee marketing have been dominated by the intermediaries who have made small producers to remain at their early stage and the result also showed that the linkage between producers and other value chain actors and access to information were restricted with and among intermediaries. In addition to the above, the result also revealed that coordination among actors characterized by less market coordination, low transparency in the flow of information and less bargaining power for small producers of coffee.

Moreover, the study made by Baloyi (2010), in his study revealed that the participation of smallholder farmers in high value markets was constrained due to poor access to comprehensive agricultural support services and there are also relatively few direct

linkages between smallholder farmers and fresh produce markets, supermarkets and agro processors. In addition, farmers' sales activities are also either at the local or at the farm gate level. Other studies done on similar area as well support rather than negate the findings of this study. This can be evidenced by the study by Arsema (2008) found that there was very weak with little or no communication among the value chain actors in Bamboo forest products which supports the findings of this study.

4.9.2 Traders linkage with other chain actors

Table 4.40 Respondents trader linkage with other value chain actors

Channel actors	Linkage			Nature			Trust			Frequency		
	Response	Freq	%	Response	Freq	%	Response	Freq	%	Response	Freq	%
	Yes	8	40.0	Informal	0		No trust	0	0	Once	2	25
Farmers	No	12	60.0	Verbal	8	100	A little trust	2	25	Twice	4	50
	Total	20	100	Written	0	0	Some trust	5	62.5	Three times	1	12.5
				Total	8	100	Full trust	1	10.25	Regularly	1	12.5
							Total	8	100	Total	8	100
Consumers	Yes	16	80	Informal	3	18.75	No trust	0	0	Once	5	31.25
	No	4	20.0	Verbal	13	81.25	A little trust	1	6.25	Twice	3	18.75
	Total	20	100	Written	0	0	Some trust	11	68.75	Three times	4	25
				Total	16	100	Full trust	4	25	Regularly	4	25
							Total	16	100	Total	16	100
	Yes	20	100	Informal	4	20.0	No trust	7	35	Once	5	25
	No	0	0	Verbal	16	80.0	A little trust	5	25	Twice	2	10
Traders	Total	20	100	Written	0	0	Some trust	5	25	Three times	6	30
				Total	20	100	Full trust	3	15	Regularly	7	35
							Total	20	100	Total	20	100

Source: Own survey result, 2014

Traders in the sample survey were requested to reply if there were linkages with other value chain actors in the study area which their response is presented in Table 4.40. Accordingly, traders to consumers and traders to traders linkages were dominant and the response rate was 16 (80%) and 20 (100%), respectively. While traders with farmers linkage was not as such good like other linkages.

Regarding nature of linkage, it was dominated by verbal linkage and while assessed trusting relationships among other actors, it was reported that traders with farmers trust relationship with a little trust and some trust and trust relationship of traders, consumers were dominated by some trust and full trust and traders with traders trust relationship had characterized by no trust and a little trust between themselves.

Concerning frequency of quarterly contact with farmers, the result showed that 2 (25%) of traders meet once, 4 (50%) of traders meet twice, and the remaining 1 (12.5%) were for three time meeting and regular meeting, respectively. Consumers and traders were asked and the result as it is depicted in Table 4.40 that it was 5 (31.25%) of trader meet once, 4 (25%) of traders meet consumer three times and regular meeting and the remaining 3 (18.75%) of traders meet customers twice. And traders with traders frequency result showed that 5 (25%) of traders meet once, 2 (10%) of traders meet twice, 6 (30%) of traders meet three times and 7 (35%) of traders meet regularly.

Table 4.41 Farmers' response on contractual agreement with other chain actors

Contract agreement	**Frequency**	**Percent**
Yes	0	**0**
No	182	**100**
Total	**182**	**100**

Source: Own survey data, 2014

As it is shown in the above table 4.41, all 182 (100%) farmers responded that they do not have any contractual agreement with any other chain actors. Therefore, we can infer that farmers in the study area do not make any contractual agreements with any of chain members. They simply sold fruits for anyone who arrived first.

4.10. GOVERNANCE STRUCTURE IN FRUIT VALUE CHAIN

4.10.1 Farmers evaluation of governance structure

Table 4.42 Farmers response on evaluation of governance structure of fruit

Consideration	Complexity		Degree of Coordination		Codification	
	Freq	%	Freq	%	Freq	%
Strongly agree	95	52.19	2	1.09	66	36.26
Agree	78	42.85	5	2.74	74	40.65
Neutral	4	2.2	1	0.54	6	3.29
Disagree	5	2.7	63	34.62	21	11.53
Strongly disagree	0	0.0	111	60.98	15	8.24
Total	**182**	**100**	**182**	**100**	**182**	**100**

Source: Own survey result, 2014

As table 4.42 depicted, from the total population of 182 respondents, 95 (52.19%) had responded that they were strongly agree with the existence of complexity of information and knowledge on the chain, 78 (42.85%) respondents responded agree, 4 (2.2%) responded neutral and 5 (2.7%) responded disagree. Hence, we can easily observe that the majority of the respondents responded that there were the complexity of information and knowledge sharing among the chain.

From the same table 4.42 about the degree of coordination between chain actors, 111 (60.98%) strongly disagree, 63 (34.62%) disagree, 5 (2.74%) agree, 2 (1.09%) strongly agree and 1 (0.54%) was neutral. Therefore, we can infer that the coordination between the chain actors was weak.

Kaplinsky (2000) argues that the term coordination often used defines the nonmarket relationships that exist between firms in different segments, or between external and internal parties in the chain. But for this research the term coordination refers the relationship between different actors on the value chain.

Moreover, the study also attempted to examine the codification of information and knowledge among the value chain actors and from the respondent farmers, 74 (40.65 %) of them responded agree with the possibility for an information can be codified 66 (36.26%) responded strongly agree, 21 (11.53%) responded disagree, 15 (8.24%) responded strongly disagree and 6 (3.29%) responded neutral. We can easily infer that there was a high possibility of the rules and regulation to be easily changed.

According to Kaplinksy and Morris (2001) rules are defined as the conditions for participation in the chain need to be set, that includes quality, price and delivery reliability. These rules were largely emphasized on meeting basic cost parameters and guaranteeing supply. This can be termed as legislative governance.

Generally, from the above result we can infer that there was high complexity of information in the production and marketing and from this we can deduce that in the study area production and marketing activities were complex; and the study assessed that co-ordination among the value chain actors was also low with a limited coordination. Therefore, care should be taken in order to create a co-ordination mechanism among the value chain actors and finally, codification of information was high, then value chain actors do not have an up right hand in changing the rules and regulations that was exercised in the study areas.

While triangulating the response through focus group discussion, the governance structure in the study area was hierarchical characterized by high transaction complexity, low coordination among the value chain actors but their relationship was restricted to consumers and collectors and low involvement in changing the rules and regulations that was exercised in the study area.

In general, it can be said that the governance structure that was exercised in the study area was weak increasing sales and decreasing costs and even in accessing information on market price. And the overall evaluation of fruit production and marketing transaction in terms of complexity and ability to codify as it was put by the farmers; they were the most important factors affecting the value chain in the study area. Safe and sound to say, the existence of high complexity in transaction and low codification of information and knowledge in the study area were one of the major factors limiting then from expanding and even the survival in fruit production and marketing.

This finding somehow can be supported with Gereffi et al (2005) studied on determinants of global value chain governance. The study showed that in case of hierarchical governance, coordination and complexity were high but the codifications were low. Hence, from this in the study area the governance structure exercised was hierarchical that was not recommended for agricultural products in order to upgrade the livelihood of small farmers.

This finding can be somehow supported with weak governance structure as Christin (2006) studied on value chains for Chilies in Ghana. The study showed that the governance structure exercised was favorable only to wholesalers and retailers and leaves smallholders in a very weak position with other value chain actors.

4.10.2 Traders Evaluation of Governance Structure

Table 4.43 Traders response on evaluation of governance structure of fruit

Consideration	**Complexity**		**Coordination**		**Codification**	
	Resp	%	Resp	Percent	Resp	Percent
Strongly agree	9	45	0	0	0	0
Agree	6	30	2	10	1	5
Neutral	0	0	0	0	0	0
Disagree	5	25	8	40	8	40
Strongly disagree	0	0	10	50	11	55
Total	**20**	**100**	**20**	**100**	**20**	**100**

Source: Own survey result, 2014

In addition to fruit farmers on evaluation of fruit governance structure, the study also had assessed trader's governance structure in marketing fruits.

As it is shown in Table 4.43, from the total of 20 population 9 (45%) of sampled traders responded strongly agree for the complexity of information and knowledge transfer, 6 (30%) of sampled traders responded agree and 5 (25%) of the sampled traders responded disagree about the high complexity of information and knowledge transfer.

Regarding degree of coordination among the value chain actors, 10 (50%) of them responded strongly disagree about the existence of good coordination of fruit transaction, 8 (40%) of the sampled traders responded disagree and 2 (10%) of the sampled traders responded agree about the existence of good coordination on the chain. About the codification of rule and regulation 11 (55%) of them responded that they were strongly disagree, 8 (40%) of the responded disagree and only 1 (5%) respondent responded that they were agreed with the nature of rule and regulation to easily changing. Taking sample respondents' response, we can conclude that there was a complexity of information and knowledge transfer, the coordination on the chain was not as such a good and the codification of rule and regulation was not changing easily. Therefore, it is possible to deduce that the governance structure in fruit marketing was hierarchical which was similar with farmers.

In general, the value chain structure of fruit was simple structure which was characterized by selling products to consumers in the study area according to the focus group discussions made.

4.11 Barriers in Fruit Production and Marketing

4.11.1. Producers entry barriers

Table 4.44 Respondents farmer response on barriers to fruit value chain

	Barriers to fruit value chain									
	Quality standard		**No skilled worker available locally**		**No access to credit and other resources**		**Too much regulation**		**Lack of infrastructure**	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
Yes	128	75.9	98	53.85	135	74.18	118	6484	178	97.8
No	54	24.1	84	45.15	47	25.82	64	35.16	4	2.2
Total	182	100	182	100	182	100	182	100	182	100

Source: Own survey result, 2014

Table 4.44 indicates the major barriers in the production and marketing. The most important barriers faced by farmers in the study area were quality standards, no skilled worker available, and no access to fruits, too much regulation and lack of infrastructure. Regarding the quality standard of fruit production, about 128 (75.9%) of farmers responded that there was quality standard barrier in fruits production and 54 (24.1%) of farmers responded that quality standard was not a barrier to produce fruits. Hence, we can infer that quality standard was a barrier for fruits production in the study area.

Concerning the availability of skilled workers, from the total respondents of farmers 98 (53.85%) of them responded that there was lack of skilled worker availability in the study area and 84 (45.15%) of farmers responded that there was the availability of skilled workers in the study area. About 135 (74.18%) of farmers replied that there was credit and other resources barriers to produce fruits in the study area and 47 (25.82%) of farmers responded that there was no credit barrier in the study area to produce fruits.

Relating to the rule and regulation, 118 (64.84%) of farmers replied that there was too much rule and regulation and it was a barrier for fruits producers in the study area and 64

(35.16%) of farmers responded that there was no barrier of rule and regulation to produce fruits in the study area.

On the same table regarding to the availability of infrastructure, 178 (97.8%) of farmers responded that there was lack of infrastructure availability in the study area and the remaining 4 (2.2%) of farmers replied that there was no infrastructure problem in the study area. Therefore, we can understand that all the above stated barriers had an influence on fruits producers in the study area.

This finding can be somehow supported by Kodigehalli (2011) who studied on value chain analysis of coffee. The study revealed that the most significant barriers for entry to the majority of small producers were consistence in quality, quantity of supply and certification of coffee and relationship with buyers with less influence.

4.11.2. Traders entry barriers

Table 4.45 Respondents trader response on barriers to fruit value chain

	Barriers to fruit value chain									
	Quality standard		**No skilled worker available locally**		**No access to credit and other resources**		**Too much regulation**		**Lack of infrastructure**	
	Fre	%	Freq	%	Freq	%	Freq	%	Freq	%
Yes	14	70	4	20	17	85	16	80	19	95
No	6	30	16	80	3	15	4	20	1	5
Total	20	100	20	100	20	100	20	100	20	100

Source: Own survey result, 2013

Table 4.45 shows traders response on barriers of fruit marketing. From the total respondents, 14 (70%) of the traders responded that there was a quality standard barrier in fruit marketing and the remaining 6 (30%) of traders responded that quality was not a barrier in the study area. Concerning the availability of skilled worker, the majority 16 (80%) of responded that skilled worker availability in the study area was not a barriers and the left 4 (20%) of traders responded that there was no skilled availability in the study area. Regarding access to credit and other resources, 17 (85%) of them responded that this factor can be a major barrier and the remaining 3 (15%) traders responded that there was credit and other resource availability in the study area. In addition the study assessed other barriers to fruit marketing, these were too much regulation and lack of infrastructure, regarding the regulation 16 (80%) of traders responded that the existence of too much regulation was a barrier while the remaining 4

(20%) of traders said that it was not a barrier and then concerning the availability of infrastructure, 19 (95%) responded that lack of infrastructure facilities especially of road becomes the major barrier in the study area.

Therefore, it can be gleaned from the above result that quality standard, access to credit and other resources, too much regulation and lack of infrastructure were the major barrier while the availability of skilled worker was not a major problem in the study area.

4.12. Upgrading Strategies in Fruit Production and Marketing

4.12.1. Value Adding Activities by Farmers

Table 4.46 farmers' response on value adding activity

Response	Frequency	Percent
Yes	26	14.29
No	156	85.71
Total	182	100

Source: Own survey result, 2014

Table 4.46 depicts the value adding activities of farmers and 26 (14.29%) of them responded that they make value adding activities on their product and the majorities 156 (85.71%) of farmers replied that they do not make any value adding activities on their products. Hence, we can deduce that majority of farmers in the study area delivered the fruits without doing any value adding activities.

Table 4.47 farmers' response on types of continuous product improvement

Reasons	Frequency	Percent
Using improved seed	16	61.54
By Washing	3	11.54
Use of package	7	26.92
Total	**26**	**100**

Source: Own survey result, 2014

Table 4.47 attempts to assess the fruit product improvement practices in the study area. Accordingly, it can be seen from this table that 16 (61.54%) of the 26 sampled fruit farmers who undertake continuous product improvement through improving quality of fruits by using

improved seed, and 7 (26.92%) of them undertake continuous improvement by using packaging material and 3 (8.51%) of them undertake by washing the fruits. From this it can be inferred that using improved seed was the dominant product improvement factor followed by packaging.

In exploring why farmers did not undertake product improvement, respondents were asked to respond on different reasons which include: shortage of finance, lack of support from extension workers, ignoring the needs of customers, lack of knowledge to undertake product improvement and shortage of equipment.

Table 4.48 farmers' response why they did not perform product improvement

Reasons	**Frequency**	**Percent**
Shortage of finance	20	12.82
Lack of support from extension	29	18.59
Ignoring the needs of customers	0	0
Lack of knowledge	104	66.67
Shortage of equipment	3	1.92
Total	**156**	**100**

Source: Own survey result, 2014

It can be seen from Table 4.48 that from 156 farmers who do not practice continuous product improvement, 104 (66.67%) of them said that there was lack of knowledge and the remaining 29 (18.59%), 20 (12.82%) and 3 (1.92%) of them put their reasons on lack of support from extension, shortage of finance and shortage of equipment, respectively. Generally, form the result we can infer that there was lack of knowledge in the improvement of fruit in the study area.

4.12.2. Upgrading strategies of producers and traders

Table 4.49 farmers' and traders' response on upgrading strategies

	Farmers		Traders	
Upgrading strategies	**Frequency**	**Percent**	**Frequency**	**Percent**
Product upgrading	32	17.6	0	0
Process upgrading	55	30.2	3	15
Functional upgrading	26	14.3	4	20
Chain upgrading	69	37.9	13	65
Total	**182**	**100**	**20**	**100**

Source: Own survey result, 2014

As it is depicted in Table 4.49 that 32 (17.6%) of the farmers exercised product upgrading by introducing new products or improving old products faster than rivals, 55 (30.2%) of farmers exercised process upgrading by increasing the efficiency of internal processes both within individual links in the chain, 26 (14.3%) of farmers exercised functional upgrading by increasing value added by changing the mix of activities conducted within the firm and the remaining 69 (37.9%) of them exercised chain upgrading by moving from established chain to a new one.

Regarding the upgrading strategies used in the sampled traders as shown in Table 4.49, 3 (15%) of traders exercised process upgrading, 4 (20%) of traders exercised functional upgrading and the majorities 13 (65%) of traders exercised chain upgrading.

From the finding we can infer that the majority of both traders and farmers exercised chain upgrading by moving to a new value chain.

The focus group discussions which was made with farmers confirmed that chain upgrading was the dominant one and this issue was also supported by the agricultural experts that most farmers were devoting time in searching of a new partners to sell their produces.

4.13. COST AND PROFIT ANALYSIS OF FRUIT VALUE CHAIN ACTORS

Profit analysis for the different value chain actors who were involved in the fruit production and marketing made through the information obtained from survey result of both from farmers and traders.

Table 4.50 Banana marketing cost for different marketing agents (Birr/22 kg)

Cost of marketing	**Actors**			
	Farmers	**Wholesaler**	**Retailer**	**Local collectors**
Sack	-	-	-	-
Fill and stitch	-	-	-	-
Labor cost	2	-	-	-
Load/Unload	2	2.00	3.00	2.00
Transportation cost	2	10.00	2.00	10.00
Storage cost	0	0.5	1.5	-
Storage loss	0	1	2.50	1
Manufacturing cost	8	-	-	-
Telephone	**0**	0.25	0.5	0.25
Guard	0	1	1	1
Personal expense	0	1	1.5	1
Total cost	14	15.75	12	15.25

Source: Own computation, 2014

Hint; ***1 ambaza =22 k/g therefore, ambaza means one tree product.***

The cost and profit of banana farmers and traders are calculated by ambaza because they transacted by ambaza.

Note: *the total cost of retailer will increase if they directly buy fruits from farmers. It becomes 20 br. The same thing for wholesalers if they purchase from local collectors the cost of transportation will reduce and the total cost becomes 10.75.*

As it is depicted on table 4.50, the highest marketing cost was incurred by wholesalers, local collectors, farmers and retailers with 15.75br/ambaza, 15.25br/ambaza, 14br/ambaza (20 br in direct purchase) and 12br/ambaza, respectively.

Table 4.51 Banana market profit

Agents		Banana marketing channel				
		Chan I	Chan II	Chan III	Chan IV	Chan V
Farmers	Purchase price	-				-
	Total cost	14				14
	Selling price	20				60
	Market profit	**6**				**44**
Retailers	Purchase price	65	42	55	20	
	Market cost	12	12	12	20	
	Selling price	90	85	90	85	
	Market profit	**13**	**31**	**23**	**45**	
Wholesalers	Purchase price	42		20		
	Market cost	10.75		15.75		
	Selling price	65		55		
	Market profit	**12.25**		**19.25**		
Local collectors	Purchase price	20				
	Market cost	15				
	Selling price	42				
	Market profit	**7**				

Source, own computation (2014)

As it is shown in table 4.51, banana retailers shared the highest profit when they made direct purchase from farmers in channel IV with 45br/ambaza followed by channel II with 31 br/ambaza and channel III with 23br/ambaza. Banana wholesalers gained the highest profit on channel III by 19.25br/amabaza if they buy from farmers and they made a profit of 12.25br/ambaza on channel I, local collectors shared a profit of 7br/ambaza. Banana producers made a profit of 44br/ambaza on channel V. Therefore, here retailers shared highest profit in banana market chain.

Table 4.52 Mango marketing cost for different marketing agents (Birr/qt)

Cost of marketing	Agents			
	Farmers	**Wholesaler**	**Retailer**	**Local collectors**
Sack	10	12.00	10.00	15.00
Fill and stitch	2	2	-	2
Labor cost	2	-	-	-
Load/Unload	4	2.00	3.00	2.00
Transportation cost	2	20.00	4.00	20.00
Storage cost	1	1.00	2.00	1.00
Storage loss	1.25	2.50	3.50	2.50
Manufacturing cost	7	-	-	-
Telephone	-	1.5	0.5	1.5
Guard	-	1.5	2.00	2
Personal expense	-	20	12.00	15
Total cost	29.25	62.5	37	61

Source: own computation (2014)

N.B *the total cost of retailers will increase if retailers buy fruits from farmers the transportation cost becomes 20 equal with others traders and the total cost becomes 53br. Like retailers, wholesaler's total cost will reduce if they purchase fruits from local collectors and it becomes 46.5br***.**

Regarding the total costs of mango traders as it is depicted the above table 4.52 shows that, the highest total cost was incurred by wholesalers with 62.5br/qt, 61br/qt by local collectors, 37 br/qt by retailers and farmers 29.25br/qt.

Table 4.53 Market profit of mango traders

Agents		Mango marketing channel				
		Chan I	Chan II	Chan III	Chan IV	Chan V
Farmers	Purchase price	-				-
	Total cost	29.25				29.25
	Selling price	115				185
	Market profit	**85.75**				**155.75**
Retailers	Purchase price	325	230	225	115	
	Market cost	37	37	37	53	
	Selling price	415	385	385	350	
	Market profit	**53**	**58**	**123**	**182**	
Wholesalers	Purchase price	230		115		
	Market cost	46.5		62.5		
	Selling price	325		225		
	Market profit	**48.5**		**47.5**		
Local collector	Purchase price	115				
	Market cost	61				
	Selling price	230				
	Market profit	**52**				

Source: own computation (2014)

As it is shown in table 4.53, regarding the total profit shared by chain actors, the highest profit was earned by retailers at channel IV with 182br/qt, 123br/qt at channel III, 58 and 53br/qt at channel II and I, respectively. And wholesalers earn a profit of 48.5br/qt at channel I and 47.5br/qt at channel III. Local collectors gain a profit of 52br/qt at channel I and II. Mango producers make a profit of 155.5 at channel V. Therefore, retailing mango fruit made higher profitable.

Table 4.54 Papaya marketing cost for different marketing agents (Birr/qt)

Cost of marketing	Agents			
	Farmers	**Wholesaler**	**Retailer**	**Local collectors**
Sack	10	12.00	10.00	15.00
Fill and stitch	2	2	-	2
Load/Unload	4	2.00	3.00	2.00
Labor cost	2	-	-	-
Transportation cost	2	20.00	4.00	20.00
Storage cost	1	1.00	2.00	1.00
Storage loss	1.25	3.50	4.50	3.50
Manufacturing cost	7	-	-	-
Telephone	-	1.5	0.5	1.5
Guard	-	1.5	2.00	2
Personal expense	-	20	12.00	15
Total cost	29.25	63.5	38	62

Source: own computation (2014)

Note: the total cost of retailers will increase if it is a direct purchase from farmers due to the high transportation cost and it becomes 54br/qt and the total cost of wholesalers will reduce if they purchase from local collectors and it becomes 47.5br/qt.

As it is shown in the above table 4.54 the total costs of papaya fruit wholesalers, retailers and local collectors are 63.5, 38 and 62br/qt, respectively. Among the total fruits, papaya fruit total cost was higher than other fruits due to the perishable nature of papaya.

Table 4.55 Market profit of papaya traders

Agents		Banana marketing channel				
		Chan I	Chan II	Chan III	Chan IV	Chan V
Farmers	Purchase price	-				-
	Manufacturing cost	29.25				29.5
		75				100
	Selling price	**45.5**				**69.5**
	Market profit					
Retailers	Purchase price	225	155	195	75	
	Market cost	37	37	37	54	
	Selling price	305	305	285	250	
	Market profit	**43**	**110**	**53**	**121**	
Wholesalers	Purchase price	155		75		
	Market cost	47.5		63.5		
	Selling price	225		195		
	Market profit	**22.5**		**56.5**		
Local collector	Purchase price	75				
	Market cost	62				
	Selling price	155				
	Market profit	**18**				

Source: own computation (2014)

As it is calculated on the above table 4.55 about papaya traders' market profit, retailers shared the highest profit at channel IV 121br/qt by direct purchasing from farmers, 110 br/qt at channel II by purchasing from local collectors and 53, and 43br/qt at channel III and channel I by purchasing from wholesalers. Wholesalers earned the profit of 56.5br/qt at channel III and 22.5br/qt. local collectors earned the profit of 18br/qt at channel I and II. Papaya producers gain a profit of 69.75br/qt at channel V. Therefore, the highest profit was earned by retailers at channel IV. Generally, from the study we can deduce that all chain actors were rewarded by positive profit.

4.14. Major Problems in Fruit Value Chain

4.14.1. Production, marketing and transportation problems of farmers

Table 4.56 Proportion of farmers indicating production problems

Production problems	Response	Frequency	Percentage
Low supply of fruits seed	**Yes**	109	59.89
	No	73	40.11
	Total	182	100
Low irrigation facility	**Yes**	126	69.23
	No	56	30.77
	Total	182	100
Poor disease control	**Yes**	34	18.68
	No	148	81.32
	Total	182	100
Lack of technical training	**Yes**	154	84.62
	No	28	15.38
	Total	182	100
Lack of credit access	**Yes**	137	75.27
	No	45	24.73
	Total	182	100
High cost of inputs	**Yes**	7	3.85
	No	175	96.15
	Total	182	100
Low yield	**Yes**	99	54.39
	No	83	45.61
	Total	182	100
Storage problems	**Yes**	134	73.63
	No	48	23.37
	Total	182	100

Source: Own survey result, 2014

According to the result obtained from the survey depicted on Table 4.56, 109 (59.89%) of farmers responded that there was a problem of supply of fruits seed and 73 (40.11%) of

farmers responded that supply of fruits seed was not a problem in the study area. Regarding the low irrigation facility 126 (69.23%) of farmers responded that it was a problem and 56 (30.77%) of farmers responded that lack of irrigation facility was the problem in the study area. And about poor disease control system 34 (18.68%) of farmers responded that it was a problem in the study area but the majorities of farmers (148 (81.32%) responded that it was not a problem in the study area. Concerning the lack of technical training 154 (84.62%) of farmers replied that it was the problem and 28 (15.38%) of farmers responded that it was not the problem in the study area. With regard to lack of credit access, 137 (75.27%) of farmers responded that the availability of credit was low in the study area, 175 (96.15%) of farmers replied that there was no problem of high cost of inputs in the study area, 99 (54.39%) of farmers agreed with the existence of the problem of low yield and regarding of the storage problem the majority of farmers 134 (73.63%) in the study area responded that storage problem was the main problem.

In general, the major/ production problems mentioned above were reported to be current problems in the production of fruit in the focus group discussion made with agricultural experts/ representative agricultural extension workers in the study area.

To support this result a study conducted by Ayelech (2011) stated that lack of disease control, lack of clean seedling and low yielding were the major problems affecting the production and marketing of fruits in Gomma woreda. Another study by Kindie (2007) pointed out that lack of improved seed varieties, shortage of finance; accurate market information, poor infrastructures and high cost of transportations were the major constraints that affect the production and marketing of sesame.

Table 4.57 Proportion of farmers indicating marketing problems

Marketing problems	Response	Frequency	Percentage
Low price of fruits	**Yes**	159	87.36
	No	23	12.64
	Total	182	100
Shortage of supply	**Yes**	35	19.23
	No	147	80.77
	Total	182	100
Price fluctuations	**Yes**	127	69.78
	No	55	30.22
	Total	182	100
Brokers interference	**Yes**	18	9.89
	No	164	90.11
	Total	182	100
Trader give same price	**Yes**	144	79.13
	No	38	20.87
	Total	182	100
No market	**Yes**	113	62.09
	No	69	37.91
	Total	182	100
Too much competition	**Yes**	23	12.64
	No	159	87.36
	Total	182	100
Lack of demand	**Yes**	34	18.68
	No	148	81.32
	Total	182	100

Source: Own survey result, 2014

As it is portrayed in Table 4.57, low price of fruits (87.36%), price fluctuations (69.78 %), trader give the same price (79.13%) and no market (62.09%) were the major problems identified by sampled farmers and the remaining replied shortage of supply (19.23%), lack of demand (18.68%), brokers interference (9.89%) and too much competition (12.64%) were reported to be insignificant by sampled respondent farmers in the study areas.

Generally, all the major marketing problems mentioned above were also confirmed to be current problems in the focus group discussion made with traders but in addition to the above stated problems, price setting and low quality of fruits were reported to be major problems. But some empirical evidence revealed somewhat a different result in marketing as compared to this study.

Similarly, this can be supported by the findings of Ayelech (2011) which revealed that declining prices, storage facilities, absence of market regulations and legislations, poor market integration and absence of improved technologies were major factors that affected production and marketing of fruits in the study area. Another study conducted Abraham (2013) on value chain of vegetables in Habro and Kombolcha woreda found limited access to market, low price of product, lack of storage, lack of transport, low quality of product and lack of policy framework to control the illegal trade route were the major marketing problems. Moreover, to supports this finding a study made by Ewane (2010) on bush mango marketing in Cameroon found that accidents during splitting of bush mango fruits, long distances to resource due to changes in land tenure, price fluctuations, low prices due to absence of market information, poor roads were the major production problems.

Table 4.58 Proportion of farmers indicating transportation problems

Transportation problems	**Response**	**Frequency**	**Percentage**
High transportation cost	**Yes**	174	95.6
	No	8	4.4
	Total	182	100
Poor road	**Yes**	178	97.8
	No	4	2.2
	Total	182	100
Shortage of truck	**Yes**	163	89.56
	No	19	10.44
	Total	182	100

Source: Own survey result, 2014

Table 4.58 portrayed the proportion of respondents indicating problems related to fruit transportation. Among the alternative problems listed poor road (97.8%), high transportation cost (95.6%) and shortage of truck (89.56%), respectively. A focus group discussion made with selected farmers also confirmed that poor road in the area becomes the most serious problem of transportation followed by high transportation cost and shortage of truck.

In general, all transportation problems selected were reported significant and this can be supported by the findings of Kodigehalli (2011); in his study he outlined that lack of infrastructure and transportation was the major transportation problems in Coffee transportation in India.

4.14.2. Marketing and transportation problems of traders

Table 4.59 Proportion of traders indicating marketing problems

Marketing problems	Response	Frequency	Percentage
Low price of fruits	**Yes**	11	55
	No	9	45
	Total	20	100
Shortage of supply	**Yes**	6	30
	No	14	70
	Total	20	100
Price fluctuations	**Yes**	17	85
	No	3	15
	Total	20	100
Brokers interference	**Yes**	7	35
	No	13	65
	Total	20	100
Trader give same price	**Yes**	10	50
	No	10	50
	Total	20	100
No market	**Yes**	3	15
	No	17	85
	Total	20	100
Too much competition	**Yes**	12	60
	No	8	40
	Total	20	100
Storage problems	**Yes**	4	20
	No	16	80
	Total	20	100
Lack of demand	**Yes**	9	45
	No	11	55
	Total	20	100
Lack of credit access	**Yes**	15	75
	No	5	25
	Total	20	100

Source: Own survey result, 2014

Sampled traders surveyed in the study area revealed that they had faced various marketing problems. In undertaking their marketing activities, price fluctuations was the prominent problem with 17 (85%) by most of the respondents followed by lack of credit access with 15

(75%) of sampled respondents and too much competition, low price of fruits and trader give same price with 11 (55%) and 10 (50%), respectively. The remaining problems such as shortage of supply, brokers' interference, no market, storage problems and lack of demand were not the main problem for the traders. Hence, we can infer that marketing problems related with price and access to credit highly affected fruits traders at the time marketing. This may affects traders' ability to purchase high volume of fruits.

Table 4.60 Proportion of traders indicating transportation problems

Transportation problems	Response	Frequency	Percentage
High transportation cost	**Yes**	19	95
	No	1	5
	Total	20	100
Poor road	**Yes**	20	100
	No	0	0
	Total	20	100
Shortage of truck	**Yes**	16	80
	No	4	20
	Total	20	100

Source: Own survey result, 2014

According to the result obtained from the survey (shown in Table 4.60), poor road infrastructure was the major problem with 20 (100%) of the response of the sampled traders. In addition to poor road infrastructure problems, problem of high transportation cost having a response of 19 (95%) was the major transportation problems of sampled traders in the study area. The other major problem was a shortage of truck 16 (80%) frequency of response.

Among the alternative transportation problems listed, all the three listed were the major transportation problems in the study area. In general, all listed transportation problems were reported to be current problems in transportation that most traders encountered in the focus group discussion made with selected traders in the study area.

Another study conducted by John et al. (2009) on banana marketing in Rwanda, Burundi and South Kivu revealed that insufficient finances, unfair taxation, inadequate transport facilities, difficulty in assembling the produce, inadequate storage and pricing inconsistencies were among the problems faced by the traders.

CHAPTER FIVE

5. SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1. Summary and Conclusions

This thesis has analyzed fruits value chain in Debub Bench Woreda, Bench Maji Zone. For this study, a total of 202 respondents (182 producers and 20 traders) were interviewed using structured and semi-structured questionnaires. Focus group discussion with key informants was also conducted. Secondary data on basic agricultural activities and population was also collected from different stakeholders and CSA. Descriptive data analysis was used to analyze the data by using SPSS software. The study has four specific objectives.

The first objective was the identification of different marketing channels and actors in the chain. The study identified five channels for each product. The major actors involved in fruit value chain include producers, local collectors, wholesalers, retailers and consumers. Most producers sold their products to the traders while some of them sale for consumers. Moreover, quantity of the fruits was significant during the time of selling. However, it was also seen that retailers and consumers directly purchase the fruits from the farmers. From this we can conclude that most fruits produced in the study area passed to consumers through intermediaries.

The second objective focused on analyzing the governance structure of the chain. Trust between them also played a major role in the transaction. The governance structure of fruits in the study area was hierarchical type of structure. Information flow was unsatisfactory; producers do not know the market price and do not know the consumer price offered by traders. The linkage between value chain actors was somewhat weak and informal in type. There is no any platform or responsible body who is working for effective and efficient linkage between value chain actors. However, there was strong linkage among some actors like; farmers with farmers. Similarly, there were good and weak attitude, habit and practices. Farmers develop trust to other farmers in comparable with other chain actors. Therefore, the governance structure of fruits value chain was hierarchical structure; it resulted for weak coordination, information transfer and market chain inefficiency.

The third objective was focusing on the distribution of the value addition among the actors in the chain. The study showed that wholesalers incurred the highest cost and retailers had a huge share in the value addition. All chain actors are rewarded by positive profit. Major entry barriers in fruit marketing and production were lack of infrastructure, no access of credits and other resources, quality standard, too much regulation and skilled worker availability. In general, the value addition by farmers in the study area was very low and lack of infrastructure was the dominant entry barrier for both traders and farmers followed by no access of credits.

The study also made an attempt to understand both farmers and traders problems associated with the production, marketing and transportation of fruits. They include low supply of fruits seed, low irrigation facility, lack of technical training, lack of credit access, low yield, storage problems, low price of fruits, price fluctuations, trader give same price and no market and infrastructure facilities. The major marketing problems of traders were low price of fruits, price fluctuations, trader give same price, too much competition and lack of credit access. Transportation problem were the major problem for both farmers and traders. To conclude the production, marketing and transportation problems were the main bottlenecks that affected the value chain of fruits in the study area.

5.2 Recommendation

Based on the above finding and conclusion, the following recommendations are drawn that should be taken in to consideration by respective concerned bodies in the study area.

Input Suppliers – coordinated increase in the number and operation of input suppliers in the woreda in order to satisfy the needs of the farmers for the various materials.

Improved infrastructure – government should make improvement in the road and availability of storage facilities that can facilitate the production and marketing of fruits. Improving transportation access to the farmers is essential to make fruits market efficient in addition to developing road infrastructures. The development of good road and transport networks can reduce unnecessary involvement of intermediaries, which could be beneficial for both the farmers and consumers.

The study revealed that the availability of nearest market center was really far from the residence of farmers and production area then it had impact on the volume of fruits supplied to the market and make the farmers to incurred additional transportation cost. Therefore, the woreda should establish the fruits market center nearest to the farmers' residence or production area. To its establishment an active participation of model farmers and agricultural experts should be encouraged.

Indeed, the Woreda was currently working hard on creation of fruits farmers union to strengthen the bargaining power of small holders but due to lack of awareness and know how the union was failed. Therefore, training and successive follow up should be done by the agricultural experts to strengthen and enhance the competitiveness of smallholder farmers.

From the study as we saw, there was low transfer of information and sharing of knowledge, and the weak coordination on the chain. It challenges the producers to get latest market information and knowledge about fruits production and marketing. Therefore, the government should establish farmers' cooperative union to improve the market chain efficiency. To its establishment the active involvement of development agents are required.

Farmers' do not get market price information to sell their produces. Therefore, information should be available for farmers at the right time and at the right place by developing an integrated agricultural marketing information system that will be linked to Woreda information center, and to link them to government's program and by using local media and development agents.

Strengthening the linkage/interaction among value chain actors, there is a need to change the outlook of actors, by developing ground rules that will bind the relationship between producers and traders. In particular, positive attitudes toward partnership, interaction, networking and learning need to be nurtured among main actors in the value chain. In line with changed attitude and practices of actors, there should also be plat form or partnership that holds all actors together to interact.

Finally, it is better to conduct marketable surplus of fruits in the study area and suggests processing industries to invest their. This will help smallholder producers to enhance their competitiveness.

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Appendix

MEKELLE UNIVERSITY

COLLEGE OF BUSINESS AND EONOMICS

DEPARTMENT OF MANAGEMENT

MASTER OF BUSINESS ADMINISTRATION

QUESTIONNAIRE: to be filled by Farmers

This questionnaire is prepared by Muluken Marye, MBA student at Mekelle University, to conduct a study entitled by "Fruit Value Chain analysis in Bench Maji Zone' and your response to this questionnaire will serve as source of information to the thesis for partial fulfillment of Master of Business Administration in International Business concentration at Mekelle University.

Part I: Demographic Characteristics

1. Sex : Male (1) ☐ Female (0) ☐
2. Your age: _____
3. Marital status: (please put "x" mark on the box)
   1. Married ☐ 2. Single ☐ 3. Divorced ☐ 4. Widowed ☐
4. Your educational background: (please put "x" in front of the choice)
   1. Illiterate ☐ 3. Primary school (1-8) ☐ Certificate and above ☐
   2. Read and write ☐ 4. Secondary school (9-12) ☐
5. Size of the household: _____

Part II. Area Information

6. Kebelle _____
7. Distance of your residence from the nearest market center.
   I. For banana _____ Km or _____ walking time (minutes/hrs).
   II. For mango _____ Km or _____ walking time (minutes/hrs).
   III. For papaya _____Km or_____ walking time (minutes/hrs).
8. Distance to all weather road _____ Km or _____hours walk.

Part III: fruits growing activities and marketing channel actors

9. Do you cultivate variety of fruits? 1. Yes 0. No

10. If yes to question number 9, please fill in the following information in the table drawn here under

No	Type of fruits	Number of trees	Average Production per tree (K.gs/qt)	Quantity consumed	Quantity sold	Average selling price
(1)	Banana					
(2)	Mango					
(3)	Papaya					

11. To whom do you primarily sell your fruits?

S.No	Channel actors	Put an "X" mark in your choice
1.	Local collector	
2.	Wholesalers	
3.	Retailers	
4.	Consumer	

Part IV. Production of fruits with input requirement

12. For how many years have you stayed in fruits production? _____
13. Do you grow fruits as sole crop or intercrop with other crops?

    1. Sole crop 0. Intercrop with others

14. From where did you get fruits seed?
    1. From own plants 3. From market through buying
    2. Agricultural bureau 4. Unions 5. Others specify _____
15. What was your input for fruit (Banana & Mango and Papaya) production & their sources in 2005 E.C?

Inputs used for	DAP		Urea		Compost (amount in local unit)	Manure (amount in local unit)	Pesticide (Lt/kg) specify
	Kg	Source	Kg	Source			
Banana							
Mango							
Papaya							

16. How did you learn about fruits cultivation?
    1. Family
    2. Training form agricultural bureaus
    3. Through education
    4. Through learning by doing in your farm land
    5. Others please specify _____
17. How many times do you harvest in a year?

Fruits	Production time in a year
Banana	
Mango	
Papaya	

18. Have you got enough yields from fruits variety that you have grown last year?
    1. Yes 0. No
19. If No, what is the major reason for the low result? (Choose the best reason from the given here under)
    1. Poor quality 3. Disease
    2. No enough land 4. Others specify_____
20. What do you use for packing of fruits?
    1. Sacks 3. Others specify_____
    2. Plastic material
21. For what purpose did you produce fruits
    1. For consumption 3. To improve the living standard
    2. For income generation 4. Others specify _____
22. How do you transport fruits to market?
    1. On donkey back 3. By truck
    2. On human back 4. Others specify _____
23. What is the source of labor for? 1. Family labor 2. Hired labor 3. Labor exchange 4. Cooperation

Part V. Linkages among channel actors and governance structure

24. Evaluate the relationship that you had with the major chain actors listed here under the

Channel actors	Linkage*	If linkage= yes; Nature of linkage**	If linkage= Yes; How Much do you trust***	If linkage yes frequency of meeting/year****
Farmers (F)				
Consumers (C)				
Traders (T)				

Key: *: (1) = Yes; (0) = No;

**: (1) = informal; (2) = verbal arrangement; (3) = written agreement;

***: (1) = distrust; (2) = a little trust; (3) = some trust; (4) = full trust

****: (1) = ones; (2) = twice (2); (3) = three; (4) = regularly

25. Did you know the nearby market price before you sold your fruit? 1. Yes 0. No
26. Do you have any contract market for your fruit product? 1. Yes 0. No
27. If your answer for Q.26 is yes, with whom? _____
28. Do you have your own retail outlet shop to sell the fruits? 1. Yes 0. No
29. If your response for Q. 28 is no, why? _____
30. How do you evaluate fruits production and marketing transaction in your area in terms of the complexity of transactions, ability to codify and degree of co-ordination (Choose either high or low and put your choice in the table drawn here under) (please use "x" mark for response)

S. No	Considerations	Strongly disagree	disagree	neutral	agree	Strongly disagree
1.	There is a complexity of information and knowledge transfer.					
2.	Fruits transactions co-ordination is good on the chain.					
3.	There is the extent to which the information and knowledge can be codified.					

31. Did you face difficulty in finding buyers when you wanted to sell banana, mango and papaya?
    1. Yes 0. No
32. If yes, in Q. 31 is it due to: _
    1. Inaccessibility of market? 3. Lack of information?
    2. Low price offered? 4. Others (specify) ----------
33. What do you do if you didn't get the expected price for your fruit supply?
    1. Took back home 3. Sold at lower price
    2. Took to another market on the same day 4. Sold on other market day
34. Who sets your selling price for fruits in 2005 E.C?
    1. Yourself 3. Set by demand and supply 5. Others (specify) ------
    2. Buyers 4. Negotiations
35. What is the mode of payment after sale? 1. Cash 2. Credit 3. Other specify _____
36. If you sell it on credit, when did you get the money? (please use "x" mark for response)

partners	After some hours	In a week time	Within a month	After sale made by traders
wholesaler				
retailer				
Local collector				

Part V: Upgrading activities of fruits value chain

37. Are there barriers to trade in fruits value chain? If yes what are their effect and the possible solutions to minimize them?

S.No	Barriers to fruits value chain	Yes (1) No (0)	If yes what do you think was the effect of such barriers	What is your suggestion to solve such barriers
1.	Quality standards			
2.	No skilled worker available locally			
3.	No access to credit and other resources			
4.	Too much local regulation/no appropriate governance structure			
5.	Lack of infrastructure			
	Others specify			

38. Do you in any way work together with other fruits producers in your area? And state the benefit of collaborating with them

    _____

    _____

    _____

39. State the amount of fruits cost of production per tree in the table drawn here under

S.No	Cost type	Amount in Birr		
		Banana	Mango	Papaya
1.	Transportation cost			
2.	Loading and unloading cost			
3.	Fertilizer cost			
4.	Cost of pesticides			
5.	packing cost			
6.	Others specify			

40. How do you assess the overall profitability of fruits marketing?
    1. An increasing profit
    2. An equilibrium with no loss and profit
    3. A Loss
    4. A decreasing profit

41. Do you perform continuous product improvement for fruits that you produce to add value?

    1. Yes 0. No

42. If your answer to question number 41 is yes, which one product improvement of the quality of fruits exercised by you? (Choose the one best reason)
    1. Using improved seed
    2. Through washing
    3. Through the use of packaging

4. Other way specify it _____

43. If your answer to question number 41 is No, which one could be the possible reason for not performing continuous improvement? (Choose the one best reason)
    1. Shortage of finance
    2. Lack of support from extension workers
    3. Ignoring the needs of customers
    4. Lack of knowledge
    5. Shortage of equipment for improvement
44. What type of improvement option for fruits value chain is mostly exercised by you as a fruits producer?
    1. Product improvement (introducing new products or improving old products faster than rivals)
    2. Functional improvement (increasing value added by changing the mix of activities conducted within the firm)
    3. Process improvement (increasing the efficiency of internal processes both within individual links in the chain)
    4. Chain improvement (by moving from established chain to a new one)

Part VI: Fruits activities

45. Please mark (X) for the questions specified here under and indicate fruits activity in your area

	Months											
Main activity	Sep (1)	Oct (2)	Nov (3)	Dec (4)	Jan (5)	Feb (6)	Mar (7)	Apr (8)	May (9)	Jun (10)	Jul (11)	Aug (12)
Marketing												
Low price time												
Medium price												
High price time												

Part VII: Problems and opportunities in fruits value chain with possible solutions

46. What are the major problems in fruits production, marketing and transportation in your woreda? Indicate the causes with possible solutions in the table provided here under.

S.No	Problem faced	Yes(1) No (0)	If yes what do you think was/ were) the cause/s) of this problem?	What is your suggestion to solve each problem?
A.	**Production problems**			
1.	Low supply of fruit seed			
2.	Low irrigation facility			
3.	Poor disease control			
4.	Lack of technical training			
5.	Lack of credit access			
6.	High cost of inputs			
7.	Low yield			
8.	Storage problems			
9.	Theft			
	Others specify			
B.	**Marketing**			
1.	Low price of fruit			
2.	Shortage of supply			
3.	Price fluctuation			
4.	Brokers interference			
5.	Trader give same price			
6.	No market			
7.	Too much competition			
8.	Lack of demand			
	Others specify			
C.	**Transportation**			
1.	High transport cost			
2.	Poor road			
3.	Shortage of truck			
	Others specify			

47. What opportunities did you get by involving in fruit production?
_____
_____
_____

48. If opportunity arise, what kind of support do you need to realize your wish?(Use the space provided)

    _____
    _____
    _____

49. What general outlook do you have over the value chain activities of fruits in your area? (Please use the space provided here under)

    _____
    _____
    _____
    _____
    _____
    _____

Thank you, for your co-operation and patience in filling this questionnaire.

Please go back through your completed questionnaire and see if there are any answers that you have inadvertently left out.

Thank you once again for your valuable assistance.

MEKELLE UNIVERSITY

COLLEGE OF BUSINESS AND EONOMICS

DEPARTMENT OF MANAGEMENT

QUESTIONNAIRE: to be filled by Traders

This questionnaire is prepared by Muluken Marye, MBA student at Mekelle University, to conduct a study entitled by "Fruit Value Chain analysis in Bench Maji Zone' and your response to this questionnaire will serve as source of information to the thesis for partial fulfillment of Master of Business Administration in International Business concentration at Mekelle University

Part I: Demographic Characteristics

1. Sex : Male ☐ Female ☐
2. Your age: _____
3. Marital status: (please put "x" mark on the box)

Married ☐ Single ☐ Divorced ☐ Widowed ☐

4. Your educational background: (please put "x" in front of the choice)

Illiterate ☐ Primary school (1-8) ☐ Certificate and above ☐

Read and write ☐ Secondary school (9-12) ☐

Part II: Fruits marketing activity

1. Do you only buy and sell fruits? 1. Yes 0. No
2. If yes, how long have you been in the fruits trading? _____ Years.
3. Do you participate in fruit trading year round? 1. Yes 0. No
4. If no, at what period of the year do you participate?
   1. Year round 3. When purchase price becomes low
   2. During high supply 4. Other (specify) ----------
5. From whom do you buy fruits? (Giving multiple answers is possible)
   1. Farmers 3. Wholesalers
   2. Cooperatives 4. Retailers 5. Others specify _____
6. Who bought fruits from you in 2005 E.C?
   1. Wholesaler 3. Retailers 5. Others _____
   2. Household consumers 4. Brokers
7. How did you sale your produce in 2005 E.C?
   1. Direct to the purchaser 2. Through broker 3. Other (specify) -------

8. How do you attract suppliers? 1. Giving better price 2. By visiting them
   3. Fair scaling /weighing 4. Other, specify _____
9. Is there any fluctuation of volume in fruits brought to the market?
   1. Yes 0. No
10. If your answer to question number 10 is Yes, the reason is _____
    1. Due to Price fluctuation 3. The existence of demand variations
    2. Due to climatic change 4. Others, specify _____
11. What is your packaging material?
    1. Sisal sack 2. Plastic sack 3. Basket 4. Others _____

Part III: Fruits pricing and costs

12. Who have been setting price in 2005 E.C?
    1. Myself 3. Buyers 5. Other specify ----
    2. Set by demand and supply 4. Negotiation
13. How did you set price? 1. Set at time of advance given 3. Negotiated at delivery
    2. At time of delivery 4. Others _____
14. What is the mode of payment after sale? 1. Cash 2. Credit 3. Other specify _____
15. If your response is credit, when do you get the money after sale?
    1. After some hours 2. In a week time
    3. Within a month 4. After sale made by traders
16. How do you evaluate the current market price of fruits in comparison with last year?
    1. Cheap 2. Medium 3. Expensive
17. How do you fix the price of fruits
    1. Considering labor and other costs
    2. The market force of supply and demand
    3. Based on the quality of fruit
    4. Based on the size of fruit
    5. On the origin of fruit
    6. Others specify (6) _____
18. Which are the months of the year when prices are lowest and highest?

Fruit	Months of the year when price is highest and lowest											
	Jan	Feb	March	April	May	June	July	Aug	Sep	Oct	Nov	Dec
Banana												
Mango												
Papaya												

Highest= H Lowest = L

19. Please indicate your costs of fruits trading just last year/quintal (2005 E.C)

S.No	Cost type	Amount in Birr		
		banana	mango	papaya
1.	Purchased price of quality fruit per quintal			
2.	Packaging material			
3.	Labor employed to fill the bag and stitch			
4.	Loading / Unloading			
5.	Transportation			
6.	Brokerage			
7.	License fee/			
8.	Taxes fee			
9.	Wage for permanent employee			
10.	Storage cost			
11.	Storage loss			
12.	Sorting			
13.	Watching and warding			
14.	Manufacture cost			
15.	Telephone expense			
16.	Personal travel & other expense			
17.	Others specify			

Part IV: Fruits value chain upgrading

20. How do you evaluate fruits marketing transaction in your area in terms of the complexity of transactions, ability to codify and degree of co-ordination (Choose either high or low and put your choice in the table)

S.No	Considerations	Strongly disagree	disagree	Neutral	agree	Strongly agree
1.	There is a complexity of information and knowledge transfer in the chain					
2.	transactions co-ordination of the Fruits chain is good					
3.	There is the extent to which this information and knowledge can be codified					

21. Are there barriers to trade in fruits value chain? If yes what are the barriers and their effect and the possible solutions

S.No	Barriers to fruits value chain	Yes (1) No	If yes what do you think was the effect of such barriers	What is your suggestion to solve such barriers
1.	Quality standards			
2.	No skilled worker available locally			
3.	No access to credit and other resources			
4.	Too much local regulation/no appropriate governance structure			
5.	Lack of infrastructure			
	Others specify			

22. Which upgrading options for fruits value chain are available in your areas?
    1. Product upgrading
    2. Process upgrading
    3. Functional upgrading
    4. Chain upgrading
23. How do you transport fruits to market?
    1. On donkey back
    2. By truck
    3. On human back
    4. Others specify _____

Part V: Fruits actor's linkages and governance structure

24. Indicate the relationship you have with other organizations indicated below in the tabl5.

Channel actors	Linkage*	If linkage= yes; Nature of linkage**	If linkage= Yes; How Much do you trust***	If linkage yes frequency of meeting/year****
Farmers(F)				
Consumers(C)				
Traders(T)				

*: = Yes; = No

**: = informal; = verbal arrangement; = written agreement

***: = distrust; = a little trust; = some trust; = full trust

****: = ones; = twice; = three; = regularly

If you have any relationships with other actors not listed in the table, state and show your linkage with them

_____

_____

_____

N.B if you chose trader, which trader you already contacted: Whole sellers or retailers.

25. Do you know the market prices in different markets (on farm, village market, and town market) before you sold your fruits in 2005 E.C? 1. Yes 0. No
26. What is your source of information? _____
27. How do you qualify the reliability, timeliness and adequacy of the information you got? Regarding the nearby local and town market.
    1. It was reliable 3. It was timely
    2. It was adequate 4. Others (specify) ----------
28. What are the major benefits of having linkages with different traders in fruits marketing?(Use the space provided here under)

Part VI: Fruits Value chain problems and opportunities with possible suggestions

29. What are the major problems in fruits marketing and transportation in your area?

S.No	Problem faced	Yes No	If yes what do you think was/ were) the cause/s) of this problem?	What is your suggestion to solve each problem?
1.	**Marketing**			
1.	Low price of fruit			
2.	Shortage of supply			
3.	Price fluctuation			
4.	Brokers interference			
5.	Trader give same price			
6.	No market			
7.	Too much competition			
8.	Storage problems			
9.	Lack of demand			
	Others specify			
2.	**Transportation**			
1.	High transport cost			
2.	Poor road			
3.	Shortage of truck			
	Others specify			

30. Accessibility to market roads in rainy seasons for vehicles is

    1. Difficult 2. Easily accessible

31. If difficult, for how long? _____days
32. At last if you have any recommendation that you would like to make regarding the value chain of fruits.(Use the space provided below)

_____
_____
_____
_____
_____

Thank you, for your co-operation and patience in filling this questionnaire.

Focus Group Discussions: to farmers, traders, and agricultural and relevant experts

This Focus group discussions designed to obtain information on the different functions in fruits value chain, the actors involved in the fruits marketing, the flow of product, information and knowledge, types of relationships and linkages exist among the actors in the value chain, identification of upgrading strategies in the chain, analyze the governance structure available, identification of challenges in fruits marketing and other related issues stated in the research objectives. The discussion is made with key informant farmers, traders, and agricultural and relevant experts in the study area.

Thank you in advance for discussion

1. Could you identify the major chain actors who are actively involved in fruits marketing in your areas with their functions? And which are more beneficial.

2. How the value chain of fruits structured in your area?

3. Considering the complexity and the transactions of fruits, the rules exercised in fruits marketing, capabilities in the supply base and degree of co-ordination. Discuss the following major types of governance structure found in your area?

    A. Market chain governance structure
    B. Modular governance structure
    C. Relational governance structure
    D. Captive governance structure

E. Hierarchy governance structure

4. What upgrading options for fruits value chain are available and discuss with its advantages?

A. Product upgrading B. Process upgrading

C. Functional upgrading D. Chain upgrading

5. Does investment in upgrading payoff? Does it bring enough added values to the poor? Who has access to knowledge and who provides knowledge?

6. Rank the following upgrading advantages in order of importance (1= most important, 5= least important)

Can the costs of fruits production/marketing/transporting be reduced?	
Can speed of delivery of fruits to consumers be increased?	
Can the farmer reduce the use of fertilizers while maintaining the same production levels for example compost or manure?	
Can the transporter use better fruits container to reduce losses/damage?	

7. in your opinion should a farmer be producer, processor and transporter or should specialize in a given functions of a value chain?

8. What are the major challenges that producers/ traders and who involved in fruits value chain encountered?

9. What overall recommendations do you have in fruits production in your areas and the overall activities that have to be taken in enhancing the benefits through upgrading the livelihood of smallholder producers?

Thank you for your valuable time and patience for the focus group discussion made.