

Market Chain Actors and Their Role in Vegetable Market Chain in Dugda Woreda, Ethiopia

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Abstract

The vegetable market chain actors were broadly classified into three categories: input supplier, direct market actors (producers, brokers, farmer traders, wholesalers, retailers and consumers) and enablers (extension service providers and credit providers). The study primarily focused on direct market actors. Vegetable producers sell their products to different market intermediaries and final consumers. About five vegetable marketing channels were identified. The total amount of vegetable that was transacted through these marketing channels in 2014/15 was 32,010 quintals. Channel two was found to be the dominant marketing channel in terms of volume of vegetable supply, where about 23,752 quintals of vegetable (74.2% of the total vegetable) was supplied to the market. Channel three was the second dominant market supplier, where about 6,786 quintals of vegetable (21.2%) supplied through this channel. Some market actors (brokers) were doing all types of businesses in the market chain without any license. Thus, policy implications drawn necessitate legalizing and supporting actors in the local vegetable markets and changing the role of brokers in the market and capacitating unions to supply inputs.

Keywords: Vegetable, actor, market chain, market channel

1. Introduction

Ethiopia is a country with a great variety of agro-ecological zones that are favorable for horticultural crop production for home consumption and sale, both local and export. Smallholder peasants produce the majority of vegetable. The areas of production and its role to the country's total GDP, still not estimated, are very low. Area covered under vegetable stands at 1.43% of the area under all crops at national level. Moreover, it shows that vegetable production constitutes about 2.95% of the total crop production (CSA 2013).

There is a steady improvement in the demand for vegetable both for local and overseas markets. Volume of vegetable export in Ethiopia has improved from 25,300 tons in 2002/03 to 177,623 tons in 2012/13. The value of vegetable and fruit exports increased with an average of 18% during this period and foreign exchange from less than USD 10 to 230.5 million (ERCA 2012/13).

Development needs of vegetable in general have been inadequately addressed in Ethiopia. At present, efforts have been stepped up to improve and support the sector. The Growth and Transformation Plan (GTP) I (2010/11-2014/15) of Ethiopia prioritizes intensive production and commercialization of horticulture. Hence, GTP I envisages the need to accelerate the development of vegetable and fruits production and clearly mentioned the transformation of the sub-sector from subsistence to commercial and market-oriented agriculture (MoA 2010).

Mendoza (1991) explains the concept of marketing as physical and economic process whereby the goods are transferred from the producer to consumer. Thus, the marketing chain is the path that the goods follow from their source of original production to their ultimate destination for final use. Many marketing channels may exist as there are separate sources and destinations for each item. Furthermore, the author suggests that a specific investigation must be undertaken on each case where the objective in every instance is to trace the movement (purchase and sale) of the product from the source of supply to its point of final use.

According to Emanu and Gebremedhin (2007), a production of horticultural product is seasonal and price is inversely related to supply. During the peak supply period, prices decline and vice versa. The situation is worsened by the perishability of the products and poor storage facilities. Thus, 25% of the product is spoiled along the marketing channel.

As far as vegetable production in Dugda Woreda¹ is concerned, seasonality is the major constraint, where surplus at harvest is the main characteristics of the product. According to Hassena (2011), the major crops (onion and tomato), that farmers grow for market and are the crops for which market volatility is high. The perishability nature of the product on one hand and lack of organized marketing system on the other often resulted in low producers' price during peak harvest season and vice versa. Smallholders supplying vegetable throughout the year in Dugda Woreda, but they could not generate as much benefit from production (ATA 2014). This could be due to improper understanding of the market like production of homogeneous vegetables and

¹ Woreda is Amharic word for district

brokers price distortion and lack of previous study on key market chain actors involved within the woreda. Accordingly, the study identifies and recommends about major vegetable production practices and the key actors involved in distorting of prices for vegetables.

Price volatility of vegetable is common in Dugda Woreda, and thus, producers have been uncertain about the price in every single day. Frequent price change might have risk of loss for producers of vegetable. Thus, farmers are not comfortable to sell vegetable for brokers, but they rather consider them as liars. Due to this farmers prefer to meet wholesalers or other buyers to negotiate and sell their vegetable products. Market distortions have been common activities of middlemen in price setting. Some vegetable are not creating time value due to their perishability. This enables actors particularly middlemen to cut price, which further reduce producers bargaining power to sell their vegetable at a price convenient for them. Under such circumstances, a study that focused on the market chain actors and their role in vegetable market chain and channels can play substantial role towards the improvement of the existing market situation.

Thus, the main aim of the study was to identify key vegetable actors, to explore the major marketing channels, through which vegetable reaches the final consumers and estimate the volume of sale, for each channel.

2. Methodology

2.1 Description of data and study area

Dugda Woreda is located in East Shewa Zone of Oromia Regional State (see Figure 1). Geographically the woreda is located between 8°01'N to 8°10' North latitude and 38°31'E to 38°57'E longitude. The total area of the woreda is 959.45 km². The woreda has 36 rural Kebele Administrations and four urban kebeles. Meki, the main capital of the woreda, is located 134 km to the South East of Addis Ababa on the main asphalt road to Ziway town. Meki town has three urban Kebeles, namely; 01, 02 and 03. The boundaries of the woreda are Bora Woreda in the North and North West, Arsi zone in the East, Adami Tulu Jido Kombolcha Woreda in the South and Gurage zone of SNNPRS in the West (WAO 2014).

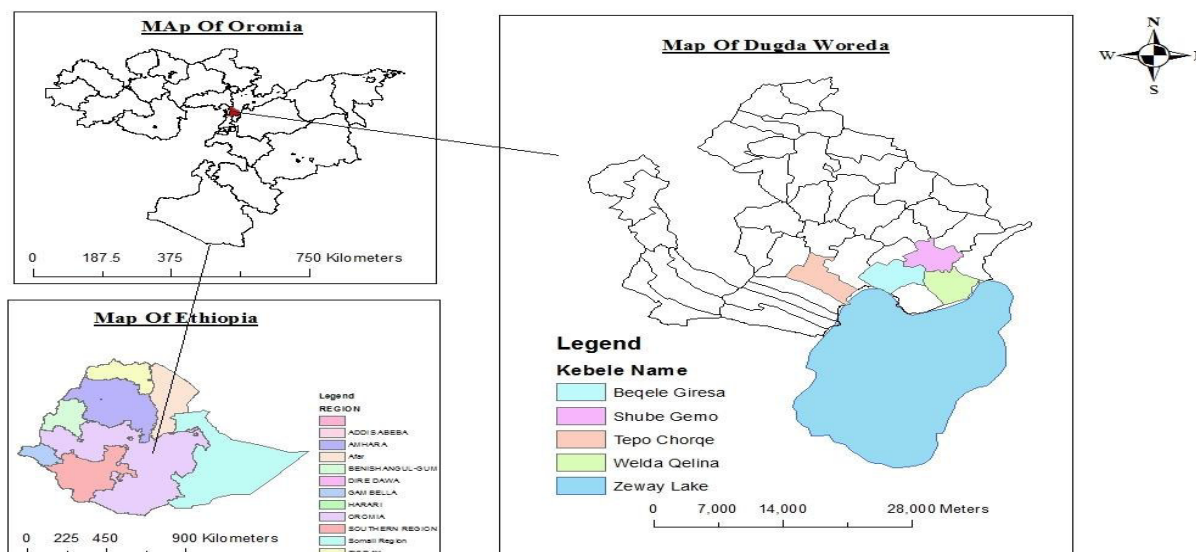
Creswell, J. (2009) noted that a mixed method of research design is useful when either the quantitative or qualitative approach by itself is inadequate. This method can provide to understand the research problems though extra time needed to collect and analyze both quantitative and qualitative data. Accordingly, household survey was employed to collect demographic characteristics, geographic information, volume of vegetable sales and the main actors involved in selling of vegetables for final consumer. Focus Group Discussion (FGD) and Key Informant Interview (KII) also used to triangulate the data collected through household survey and to collect key actors involved in vegetable production and marketing.

In view of that, both primary and secondary data was used to meet the objectives of the study. The primary data was collected using household survey. For primary data collection a combination of qualitative and quantitative methods was used. The quantitative data was collected using household survey. For household questionnaire survey a total sample size of 190 respondents comprising of 136 farmers, 4 farmer traders (assemblers), 8 woreda wholesalers, 10 woreda brokers, 10 woreda retailers, 6 central wholesalers and 6 central brokers and 10 central retailers took part. For qualitative data a single FGD per kebele with producers at sampled Peasant Association (PAs) were conducted. On Average 8 persons participated in the FGD.

For primary data collection the study used two kinds of sources; (1) Survey questionnaire for vegetable producers and actors from Meki town and Addis; (2) Check list of questions for focus group discussion. The survey questionnaires were designed to explore vegetable production, marketing, product follow and distribution, marketing costs and margins. To complement the structured survey FGD was conducted with relevant vegetable market chain actors. Moreover, personal observation and KII were also conducted to triangulate with the structured survey questionnaire.

Secondary data was gathered from different sources such as government institutions, Woreda Irrigation and Development Authority, Woreda Agricultural Office, survey reports, annual reports and websites. Published and unpublished documents were also comprehensively reviewed to secure relevant secondary information.

Figure 1: Location of Dugda woreda



Source: Rural Land Administration and Use Directorate of the MoANR¹, 2016

2.2 Sampling methods

Preliminary information about the study area was obtained from Woreda Irrigation and Development Authority (WIDA) to generate important information for questionnaire preparation for the household survey and to select sample PAs. Attempts were made to select representative samples in the selection of randomly sampled PAs, vegetable producers (tomato and onion) and traders. The surveyed vegetable producing PAs were, Beqelet Giresa, Shube Gemo, Tepo Chorqe and Welda Qelina. The survey included producer and trader surveys.

In the producer survey a multi stage sampling procedure was followed in order to collect data from representative samples that would help reflect the situation of vegetable market chain of specific commodities (tomato and onion). Accordingly, from 36 PAs in the woreda only 18 PAs practiced irrigated agriculture to produce vegetable. First, by employing purposive sampling method Dugda Woreda was selected. In the second stage, four PAs were selected randomly from 18 PAs. Then, 140 vegetable producers were selected from identified four PAs using Systematic Random Sampling. Thus, every household was selected from first by selecting random numbers between 1 and 3 and then selected every 3rd person from a population of 430. Thus, from four selected PAs 136 valid cases were obtained. Then by employing Probability Proportional to Size (PPS) number of smallholder farmers to be taken from each PAs is determined from producers' stratum until the required sample size was achieved. Primary data were largely collected from households and key informants using questionnaire and check list of questions or interview guides, respectively. The data were collected on March 25–April 08, 2015.

The place for trader surveys was market towns in which a good sample of tomato and onion traders existed. On the basis of flow of tomato and onion, two markets namely Meki town and Addis Ababa, Piassa Atikilt Tera, a place in Addis Ababa where all the vegetables come and distributed from, were selected purposively. Vegetable traders such as brokers, farmer traders (assemblers), woreda and central wholesalers, and woreda and central retailers were sampled at town of Meki and Atikilt Tera (literally it means horticulture market) respectively by employing snow ball sampling techniques. Because of the limited number of wholesale traders in the woreda the sample exhaustively contained almost all vegetable wholesalers from Meki town. In total 136 vegetable producers; 4 farmer traders (assemblers); 8 woreda wholesalers; 6 central wholesalers; 10 woreda brokers; 6 central brokers; 10 woreda retailers and 10 central retailers from Meki town and Addis Ababa, Atikilt Tera market were interviewed making a total number of 190 respondents for the study.

Primary data were collected using seven enumerators who have college diploma and above was recruited and trained for data collection purpose. The selected enumerators were working in the Woreda Irrigation and Development Authority Office and as development agents in those selected PAs. Before data collection, the questionnaire was pre-tested on six farmers and two traders to evaluate the appropriateness of the design, clarity and interpretation of the questions, relevance of the questions and time taken for an interview. Hence, appropriate modifications and corrections were made on the questionnaire. Data was collected under continuous supervision of the researcher.

¹ The Ministry of Agriculture and Natural Resources

The filled-in interview schedule was thoroughly checked for completeness and exactness. Similarly, an informal survey was employed to study the marketing systems of vegetable for the purpose of triangulation and to obtain additional supporting information for the study.

Purposive sampling was employed to collect data from knowledgeable people like elders, youth, and women farmers and responsible persons of different institutions on the subject covering from PAs in Dugda Woreda to the central market at Addis Ababa. Thus, FGD was held in groups based on pre-determined discussion guides and key informants were interviewed from different organizations and institutions. Duly, the data generated at various levels was supported by field observations and triangulated with other data.

2.3 Method of data analysis

Primary data was entered in the SPSS spreadsheet and cleaned for irregularities. The cleaned data was summarized into descriptive format in terms of frequencies, percentages and central tendencies.

The study used descriptive analysis in order to compute ratios, percentages, means and standard deviation in the process of examining and describing marketing functions, facilities, services, role of intermediaries, market and traders characteristics.

3. Result and discussion

3.1 Market chain actors and their role in vegetable market chain

The major market chain actors identified were: input suppliers, credit providers, producers, farmer traders, wholesalers, brokers, retailers and consumers. The major actors identified in terms of the role played in the vegetable market chain were wholesalers and brokers. The survey result indicated that more than 95% of farmers do not have a linkage with potential buyers (wholesalers) firms and they do not be acquainted with their actual buyers during selling their vegetable due to high involvement of brokers/middlemen in vegetable market. Smallholder farmers do not have any power or say on price determination (price takers). Below is a detail discussion of each actor separately.

3.1.1 Input suppliers

These were cooperative and private input dealers (agro dealers) that sell tomato, onion and cabbage seeds and fertilizers. Meki-Batu Union and private input dealers like Agro Veg. agricultural input supplier, Senbo pesticides, Adama, Rediet and Gemo were the main input suppliers in the woreda. These private dealers sell inputs including seed and fertilizer. Farmers prepare own seedling which was about 90.2% and the remaining supplied from private nursery. Farmers have access for seedlings from Awash Melkasa and Koka areas. Private input dealer have high contribution in supply of insecticide/fungicides in the woreda which account 97.7%. According to KII majority of private dealers at Meki town do not have license in seed and fertilizer trading and not managed by professionals like agronomists.

Table 1: Sources of input for vegetable producers in Dugda Woreda

Input sources for vegetable producers		Percent
Source of seedling	Own	90.2
	Private nursery	9.8
Source of fertilizer	Open market	9.1
	Cooperative association/union	90.9
Source of insecticide/fungicide	Open market	97.7
	Union/cooperative	1.5
	Union	0.8

Source: Survey result, 2015

3.1.2 Extension service providers

Woreda Irrigation Development Authority and Woreda Agricultural Office were the main bodies that provide technical support on production of vegetable. Other NGOs and international organizations like ILRI/LIVES, European Union (EU) and Food and Agricultural Organization (FAO) were also involved in institutional support for vegetable producers. Major projects funded by EU and implemented by consortium of NGOs like Self Help Africa, Oxfam America and Farm Africa were supporting Meki-Batu Fruits and Vegetable Growers Union.

3.1.3 Credit providers

Vegetable production was a costly business in the area. To cultivate onion and tomato on a quarter of a hectare, farmers have to invest 11,000 Birr or up to 22,000 Birr, respectively (ATA 2014). Therefore, most farmers rent out their land to other commercial farmers due to lack of capital. In order to solve this there were attempts to provide farmers with credit that help them to cultivate land for their own.

The main credit institutions operating in the area were Oromia Credit and Saving Share Company (OCSSCO), Busa Gonfa, Meklit, Africa Mender and Metemamen. However, most of these credit institutions were not providing credit for vegetable growers due to high risk attached to vegetable production. For example,

credit was provided based on group based loan/group liability. The loan primarily dispersed for purchase of fertilizer, seed, irrigated agriculture and livestock herding were 19.30 million Birr¹ dispersed to clients by OCSSCO in June 2014 for 28 PAs in the woreda.

The credit institution considers vegetable production as a risky business due to diseases incidence and price fall during harvest. However, Busa Gonfa Micro Finance institution was providing credit for vegetable producers in rural PAs. The institution dispersed 108,439 Birr for 22 farmers that cultivate vegetable in 2014. But, the institution has limited capacity and reaches only 5 PAs. It offers a minimum of 4000 and maximum of 8000 Birr for farmers based on their loan repayment history. This was very low compared to the high cost needed to cultivate vegetable.

3.1.4 Producers

There were about 6082 households (producers) of vegetable in the woreda. Their estimated annual production was 1.7 million quintals² of tomato, 1.7 million quintals of onion and 120,312 quintals of cabbage. Though the majority of the farmers were members of cooperatives they rarely sell their products to cooperatives and institutional buyers.

Producers were producing onion and tomato for market and thus they were the major player of the market. They participate in the truck load sell of vegetables to wholesalers, traders, cooperatives and unions at farm gate. They also sell to different types of retailers (with varying volume of sell) both at farm gate, local market and at central market if they have good link to traders. Despite the fact that farmers were sources of all marketed vegetables, they were disadvantaged group among the market players since they were price takers. Smallholder producers benefited when selling to the union (which was not common due to high involvement and pressure coming from brokers), or to the retailers in very small quantity or in Addis Ababa market (which was very rare) as producers mostly sell vegetables through brokers. Thus, the situation calls for smallholder vegetable producers to diversify their vegetable products so as to maximize their benefits obtained and minimize risks of price fall in the market.

3.1.5 Farmer traders

Farmer traders perform both vegetable production and selling by collecting from other farmers. They live at Meki town and sell vegetables for central (Adama and Addis Ababa) and southern (Shashemene and Hawasa) markets. Their number was small. They purchase and sell vegetable without involvement of brokers.

3.1.6 Brokers

Brokers in the woreda have regular and temporary customers from major towns and cities across the country. Their supply to the towns varies seasonally. As per KII more than 100 brokers of vegetables were found in the woreda and all of them were illegal brokers (do not have broker licenses).

There were different levels of brokers in the woreda. The main brokers who deal directly with traders in other places were based in Meki town while their assistants receive orders and deal with farmers. The share of profit that goes to brokers varies from farmer to farmer and from trader to trader. It was common for all brokers to get commission ranging 800-1000 Birr for one car (50-60 quintals) for onion. Similarly one track carries 84 boxes of tomato (46 quintals) for which brokers get up to 1500 Birr. The rate of commission vary because of the quality and quantity of vegetable supplied. To get higher commission and most importantly retain their customers, brokers usually overload the car, fill the sacks and boxes intensively and sort-out less quality products.

Formerly, brokers were using wooden boxes in weighing onion or tomato (it weighs 10 kg). Latter on the same boxes have been made up of light wooden materials weighing only 5kg, which creates room for cheating the farmers. Producers were misled by the weight of these new boxes as 10kg when weighing vegetable losing 5kg per box and about 15 boxes of tomato per truck load. This was mainly due to absence of standardized materials for measurements and lack of inspection on weighing balances. Respondents confirmed that limited attempts were undertaken to avoid this problem by relevant government authorities.

3.1.7 Sorters

These were people that have been hired by traders or brokers to grade vegetable at farm gate. They separate less quality and infected products after harvest so that the traders get quality products. They were paid about 7-8 Birr per box or about 500 Birr per car. On top of this they get informal payments in the form of bribe from farmers to sort it less seriously. But farmers know that the sorters were more loyal to traders and brokers. If they do not give any bribe the sorters will deliberately drop out good/moderate quality products.

3.1.8 Transporters

The main transporters were track and Isuzu car owners in different towns. Their number was unknown but there were adequate transporters. Traders sometimes use their own car to transport to their sale outlet. The total cost of transporting 50-60 quintal of onion was about 2000 Birr over a distance of 125 Km. For example to transport 50-

¹ Eth. Birr 20.78 = US \$1 in April, 2015

² A quintal (qt) is equivalent to 100 kilograms.

60 quintal of vegetables to Addis Ababa they charge 2000 Birr, 1500-2000 to Shashamane and 3000 to Hosana. Accordingly, per quintal transport cost was about 33 Birr to Addis Ababa and 50 Birr for Hosana. However, transporters usually overload the car beyond its capacity (they call it *Fiddamo*), which reduces per quintal cost. They usually travel during night time to reach the next morning market. In addition, there were transport brokers that link product brokers with transporters. They were paid 10% commission by owners of car. They were directly contacted by product brokers.

3.1.9 Wholesalers

Wholesalers were the major buyers of vegetable as they buy at least a truck load of vegetable at a time from farmers. Easy access to road and mobile phone has helped the wholesalers to know where to find products throughout the country and decide the price at which he/she has to buy to get maximum profit. Wholesalers buy vegetable from producers through brokers who represent them in vegetable buying activities. Thus, traders, particularly those from Addis Ababa and Adama just call the brokers they know to send them a truck of vegetable and they send the cash either through bank or with truck driver.

3.1.10 Retailers

Retailers were market actors which have direct contact with consumers. There were three major types of retailers in vegetable markets: open market retailers, supermarkets and shops, and roadside retailers. Open market retailers were buying vegetable either from wholesale traders or farmers. Meki town retailers buy both from producers and wholesale traders. While in major cities they buy from wholesalers. Road side vegetable retailers were also important vegetable retailers operating on the road from Meki to Addis Ababa or within the cities. The major advantage of these retailers was to enable vegetable farmers in selling their products without the intervention of brokers. The supermarket and shops were mainly in the major cities and commonly buy vegetable from wholesalers.

3.1.11 Consumers

Consumers were found everywhere though the numbers may vary. The major ones were found in major towns like Addis Ababa, Hawasa, Hosana, Moyale, Jijiga, Dire Dawa, Mekele and Bahirdar. Consumers are final users of vegetable products mostly from retailers for consumption purpose.

3.2 Marketing Channels of Vegetable

Vegetables have been important cash crops and pass through the hands of many intermediaries. Based on the direction of flow and volume of vegetable transacted, five marketing channels were identified. The channel starts from the producers (farmers) and ends in the terminal market passing through a number of marketing actors along the chain. According to producers survey, which involves 136 respondents in Dugda Woreda about 32,010 quintals of vegetables was marketed. In order to quantify the volume of vegetables handled by each marketing actor along the marketing chain, the total purchased amount was obtained from the producer and trader surveys.

The amount of vegetable transacted in these five market channels was different and two market channels were found to be dominant in terms of volume of transaction as clearly indicated on Box 1 below. Marketing channel I starts from producers, retailers and ends with final consumer. In this market channel about 736 quintals of vegetable (2.3% of the total) was supplied. Channel II, which involves producers, brokers, wholesalers, retailers and consumers. It was found to be the dominant one in terms of volume of vegetable supply. In this market channel about 23,752 quintals of vegetables (74.2% of the total) was supplied. Marketing channel III was the second dominant one, about 6,786 quintals of vegetables (21.2% of the total) supplied in this channel. The participants of this market channel include producers, woreda wholesalers, central wholesalers, retailers and consumers. Channel IV and V supply 0.8% and 1.5% of the total vegetables, respectively. The participants of these channels contain producers, farmer traders (assemblers), wholesalers, retailers and consumers and producers, union, consumer cooperatives and consumers, respectively. Marketing channel IV was the least dominant one as they accounted for the supply of 0.8% of total vegetables supplied through this channel.

Box-1 Vegetable Marketing Channels of Dugda Woreda in Quintal (qt)

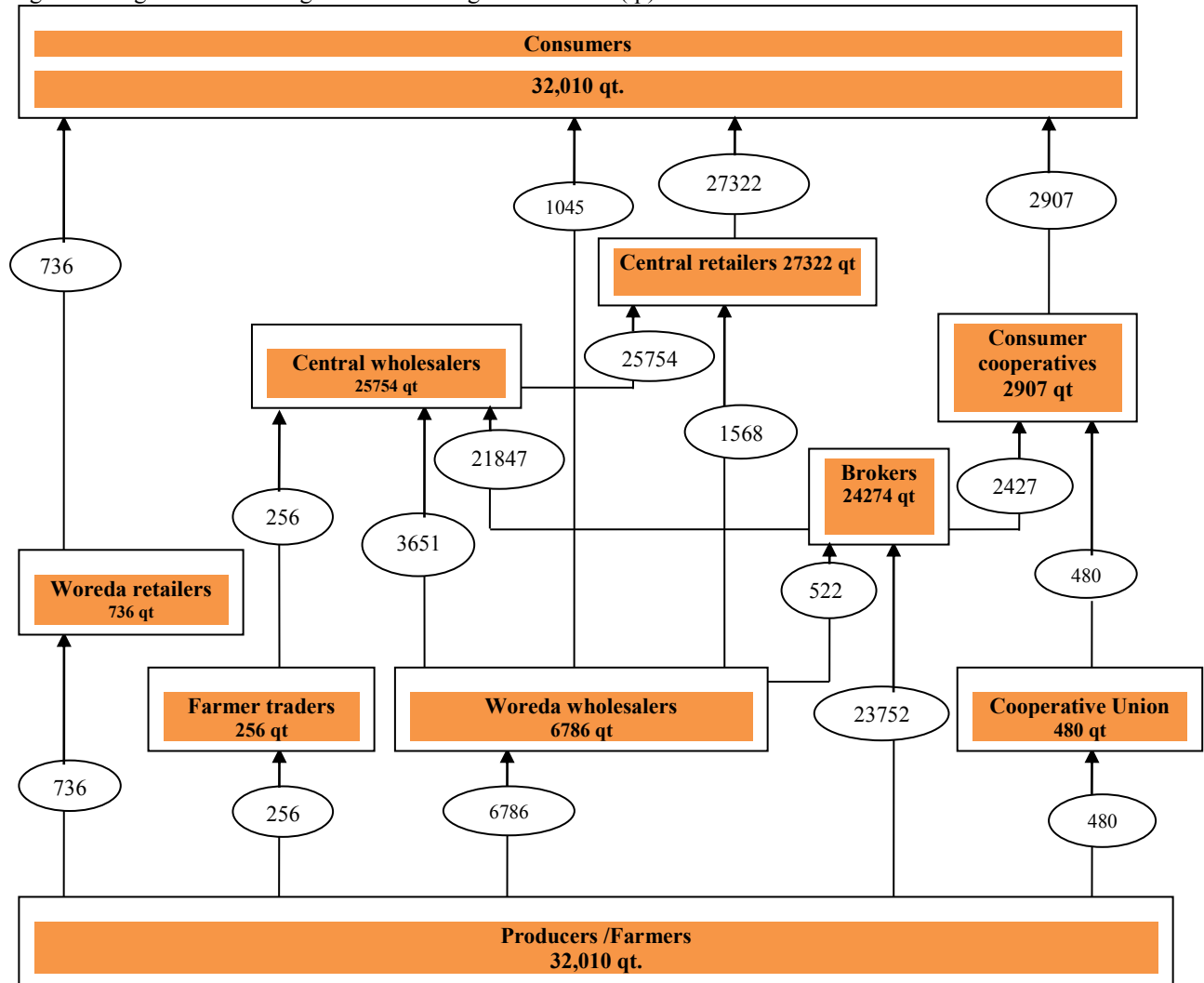
Channel I: Producer → Woreda retailer → Consumer (736 qt)
Channel II: Producer → Broker → Central wholesaler → Retailer → Consumer (23,752 qt)
Channel III: Producer → Woreda wholesaler → Central wholesaler → Retailer → Consumer (6,786 qt)
Channel IV: Producer → Farmer trader → Central wholesaler → Retailer → Consumer (256 qt)
Channel V: Producer → Union → Consumer cooperative → Consumer (480 qt)

Source: Survey result, 2015

The subsequent schematic framework for key vegetable trading actors indicated on Figure 2 below represents volume of vegetable passing several market channels in Dugda Woreda. Producers primarily produce vegetables for the purpose of marketing and the framework clearly indicates the volume of vegetables sold by smallholders passing through several channels. Hence, vegetable produced pass through different marketing channels to reach the final consumer. From the figure the initial quantity produced and sold by smallholder was

exactly the same with final quantity consumed at different market places. The channel indicates the complexity of the chain that commodity passes through before it reaches the final destination.

Figure 2: Vegetable marketing channels in Dugda Woreda in (qt)



Source: Survey result, 2015

4. Conclusions and Recommendations

4.1. Conclusions

The study mainly aimed to identify the major actors in vegetable market chain, to explore and estimate the volume of sale for the major marketing channels, through which vegetable reaches the final consumers.

The major market chain actors identified were input suppliers, credit providers, producers, farmer traders, wholesalers, brokers, retailers and consumers. The major market actors identified in the vegetable market chain were producers, wholesalers, brokers and cooperative union.

Vegetable have been important cash crops and they pass through the hands of many intermediaries. Based on the direction of flow and volume of vegetables transacted, five marketing channels were identified. The channel starts from the producers (farmers) and ends in the terminal market passing through a number of marketing actors along the chain. Accordingly, in total about 32,010 quintals of vegetables was marketed among the identified channels.

From the identified major vegetable marketing channels the first channel was the shortest one and vital for producers and consumers to get vegetable at reasonable prices; while the second and third marketing channels were the most dominant in terms of total volume marketed for vegetable.

The results of this study have important implications on policy. As per KII some market actors such as brokers were doing all types of businesses in the market chain without any license. As a result, provision of tax holidays and tax cuts for licensed traders as an incentive to encourage legal trade and brokerage services is required (this could also broaden the state's tax base). Government should also find the means to control illegal

actors (unlicensed traders and brokers). The government should develop criteria to make brokering an authorized and licensed business so that local authorities provide licenses to those who meet the criteria with restriction that they do only brokering. The licensed brokers should also be given training on brokering activities including legal issues.

According to KII, though brokers played not responsibly for facilitation and marketing of vegetables, their contribution for development of marketing of vegetables is undeniable, if they were properly legalized. This is in line with the research report by Gabre-Madhin Eleni Z. (2001) which demonstrates that traders minimize their transaction costs of search by using brokers, who enable them to exchange with unknown partners. The report also shows that at the level of the grain economy as a whole, brokers significantly increase the total economic welfare by enabling a more efficient allocation of search effort by traders. Thus, traders with relatively higher search efficiency and lower search costs choose to search on their own, while traders with lower search efficiency and higher search costs choose to use a broker. Hence, brokers primarily create linkage in between large wholesalers and farmers in order to obtain commission if transaction occurs. The Woreda Trade Office (WTO) and other concerned partners need to work in closer partnership and regulate brokers to play a constructive role for efficient transaction of vegetables. Hence, WTO, WIDA, Woreda Agriculture Office (WAO) and other concerned stakeholders have to capacitate brokers in collaboration by delivering continuous capacity building schemes like, trainings and supports.

Initiate standardized weighing mechanism to overcome the problem of cheating by middlemen. Plastic box of known weight should be used instead of wooden boxes with variable weight (use of wooden box should be forbidden). Using plastic boxes helps traders who buy vegetable from these areas to calculate their profit margins in advance from the normal transaction than being motivated for using wrong weight which support orderly marketing functions.

The Woreda Trade Office should be staffed and given clear guidance in monitoring the accuracy of weighing scales and measuring boxes in vegetable markets so as to ensure enforcement of law and order in the market. The office should also be capacitated by staffing, training for existing employees and close follow-up from regions and zone offices in a way that it could create/promote fair market for producers and all actors.

To ensure delivery of fertilizers for irrigated production and pesticides of the required quality at the right time producers organizations in the area, like Meki-Batu unions which provides input for smallholder producers at the moment and also engage in selling of vegetable outputs for major markets, should be strengthened in order to offer their services during off season with early planning so as to address the problem. It has been important to capacitate Meki Batu union since it helps the smallholder producers in getting and selling their products at reasonable price and also avoids market distortion created by brokers and wholesalers. As a result, regional and local government and other concerned stakeholders have to engage and participate in strengthening Meki Batu Union in terms of finance, labor and equipments.

With a purpose of promoting crop diversification and minimize marketing risk, there is a need to have a national and regional vegetable cropping calendar. The information has to be shared throughout the country, region and woreda so that development workers advise farmers what, how and for whom to produce and distribute vegetable in the market.

Acknowledgement

I would like to express my sincere appreciation and gratitude to Ministry of Agriculture for the scholarship grant covering tuition fees and research work. I also thank ILRI/LIVES for providing research grant for this study. I would also like to thank Dugda Woreda Irrigation Development Authority and Woreda Agricultural Office for their warm hospitality and assistance during data collection. I also express my heartfelt thanks to the producers and traders who responded to my numerous questions with patience.

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