

**COMMERCIAL EGG VALUE CHAIN ANALYSIS: A CASE STUDY OF  
ILALA MUNICIPAL COUNCIL, DAR ES SALAAM.**

**BY**

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**A DISSERTATION SUBMITTED IN PARTIAL FULFILLMENT OF THE  
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## **ABSTRACT**

The study was conducted to analyse the commercial egg value chain in Ilala Municipal Council. Specific objectives were (a) To identify the marketing and distribution channels for commercial eggs and relationship among marketing agents (b) To determine the profit margin accrued by different actors in the commercial egg value chain (c) To identify factors that influence profitability for producers in the chain; and (d) To determine the marketing efficiency for commercial egg value chain in the study area. Structured questionnaires were used to collect data from 120 respondents including layer producers, traders and consumers. SPSS computer software was used to generate descriptive statistics of the value chain. On the other hand, profit margin analysis was used to determine profit accrued by the chain actors. Regression analysis was employed to test the significance of factors that influence profit level at the producers' level. Marketing margin and correlation analysis were used to determine marketing performance (efficiency) of commercial egg value chain in the study area. Six major marketing channels for commercial egg value chain were identified. Producers obtained higher profit margins than other actors in the value chain. Packaging costs was found to be positive and significant at 1% ( $p < 0.01$ ) to influence profitability at the producer's level. Marketing margins were Tshs 1506 at retail level while Tshs 433 and Tshs 573 per tray of eggs were found at wholesale and egg collectors level respectively. The study recommends support formation of groups/associations at all level of the chain; strengthening of extension services; enforcement of laws and regulations governing animal feed formulations, hatcheries and animal diseases control.

**DECLARATION**

I, LEOCADIA PAUL KASHINDYE, do hereby declare to the Senate of Sokoine University of Agriculture, that this dissertation is my own original work and that it has neither been submitted nor being concurrently submitted for degree award in any other institution.

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Date

The above declaration is confirmed by

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(Supervisor)

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Date

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## **DEDICATION**

This work is dedicated to my parents, Paul Kashindye and Magdalena Nkeni who laid the foundation of my education. The work is also dedicated to my children George, Jovin and Jackline.

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## LIST OF ABBREVIATIONS

FAO	Food and Agriculture Organization
FAOSTAT	Food and Agriculture Organization Statistic
FFV	Fresh Fruit Vegetables
GDP	Gross Domestic Product
IIRR	International Institute of Rural Reconstruction
MALDO	Municipal Agriculture and Livestock Development office
MCBA	Market Channel Baseline Analysis
MLDF	Ministry of Livestock Development and fisheries
MM	Marketing Margin
SACCOs	Savings and Credit Cooperative Societies
SNAL	Sokoine National Agricultural Library
SPSS	Statistical Package for Social Sciences
SUA	Sokoine University of Agriculture
TSHS	Tanzanian Shillings
URT	United Republic of Tanzania
USA	United State of America
VCA	Value Chain Analysis
VIF	Variance Inflation Factor

## **CHAPTER ONE**

### **INTRODUCTION**

#### **1.1 Background Information**

Poultry is described as all domesticated birds that are reared for the production of meat and eggs for human consumption as well as for economic benefits. It includes chicken, turkey, ducks, geese, quails, guinea fowls and other domesticated birds (Mogesse, 2007). World wide, there are two distinct poultry production systems, namely intensive and extensive. Intensive system is practiced in the urban and semi urban areas and uses high yielding commercial chicken. The extensive or scavenging system is common in rural areas and uses native chicken (Sekeroglu, 2008). It has been estimated that more than 80% of the global poultry population occurs in traditional family-based production systems and contribute up to 90% of the total poultry products in many countries (Mack *et al.*, 2005).

In Africa, most poultry production is undertaken through an extensive system at village or family level and based on scavenging domestic fowl (Dwinger *et al.*, 2003). According to Gueye (2007) chicken largely accounted for about 98 % of the total poultry numbers (chickens, ducks and turkeys) kept in Africa. In 2005, the total poultry population of Africa was estimated to be 1356 million chickens, 16 million ducks, 12 million geese and guinea fowls and 9 million turkeys. The leading countries in chicken meat production in Africa are Algeria, Egypt, Morocco, Nigeria and South Africa where top egg producing countries being Nigeria, South Africa, Egypt and Algeria (FAOSTAT, 2005a).

Poultry industry in Tanzania is categorized into commercial (broilers, layers) and traditional (local chicken) production system (URT, 2006). Current data shows that poultry population is estimated to be 58 million of which 35 million are local (indigenous) chickens, 7 million layers, and 16 million broilers (URT, 2011). Local chickens accounted for 60%; broiler 28% and layers 12% of the total poultry population in Tanzania.

Traditional poultry production is dominant in rural areas, supplying most of the poultry meat and eggs consumed in the rural and about 20% in the urban areas. In addition, the production is characterized by low productivity mainly due to the low genetic potential, diseases, lack of supplementary feed, poor husbandry including low plane and lack of or improper shelter (Minga *et al.*, 2000; Boki, 2000). The main local breed sub-type found in Tanzania includes Kuchi, Kishingo, Sukuma, Kinyafuzi and Kiduchu.

On the other hand, commercial poultry (layers and broilers) production is described to operate in small scale and largely in urban and peri-urban areas. The production is intensive and it is based in specialized breeds, in which producers use recommended standard practices such as appropriate housing, feeding, health and diseases control programs. Furthermore, it is characterized by high level of productivity. The common commercial breeds and their crosses include White Leghorns, Rhode Island Red, Light Sussex and Plymouth Rock and some hybrids such as Hisex, Hybro and Shavers. According to National Agriculture sample survey 2002/2003 layers production is concentrated in Dar es Salaam (28%),

Kilimanjaro (15%), Pwani (11%) and Dodoma (11%), while in Iringa, Morogoro and Mbeya regions, the production is moderate. The remaining regions have insignificant layers production (URT, 2006).

Moreover, according to Boki (2000) commercial poultry production in Tanzania started in 1937 when the Ministry of Agriculture introduced exotic breeds like Rhode Island Red, Light Sussex, White Leghorns, Brown Leghorn, and Black Australorps. These pure-breeds were used in up-grading programmes. However, the actual commercial poultry production started in 1960 with importation of hybrid chicks for egg and meat production.

## **1.2 Socio-Economic Importance of Poultry Industry**

The significant contribution of poultry industry to national economies, in improving nutritional status, provision of employment and income generating activities have been recognized and well documented by various scholars. Chicken meat and eggs were estimated to contribute 20–30% of the total animal protein supply in low-income and food-deficit countries. Both chicken meat and eggs were affordable sources of protein and contribute to a well balanced diet to satisfy human needs (Assegie, 2009). According to Mack *et al.* (2005) the commercial poultry sector has contributed much, making eggs and poultry meat a nourishing and affordable dietary item for millions of people.

Similarly, according to Amos (2006) poultry are a good converter of feed to eggs and meat within a short period of time, and in nutritive value, poultry eggs rank

second to milk from cattle. Dwinger *et al.* (2003) documented the contribution of poultry that provides a good source of protein and read cash for villagers, which in turn helps to sustain the village economy and contributes to the prevention of urban migration. The study by Adebayo and Adeola (2005) also described the contribution of poultry to the economy of countries, and its importance in improving the employment opportunities and animal food production. Poultry production has developed and occupied a place of pride among the livestock enterprise due to its rapid monetary turnover (Amos, 2006).

According to Muchenje *et al.* (2000) chicken provide major opportunities for increased protein production and incomes for smallholder farmers because of short interval generation, with minimal association with religious taboos and its complementary role played in relation to other crop – livestock activities. Poultry keeping has a symbolic importance within the context of many economic, social and cultural activities example of special banquette for distinguished guests, gifts, cocks as alarm clocks for villagers and / or religious ceremonies (Gueye, 2007).

In Tanzania, poultry industry has significance contribution to economy and employment opportunities. The available data indicated that in 2005 poultry and other small stock production contributed 30% of livestock GDP (URT, 2006). According to National Sample Census of Agriculture 2002/2003 poultry industry in Tanzania mainland employed a total of 2 950 268 smallholder households of

which 2 925 710 keep indigenous (local) chicken, 16 427 keep layers, and 8131 keep broilers.

### **1.3 Problem Statement and Justification**

Commercial egg sub sector has significant role to household livelihood and national economy. It contributes to improved nutrition (good source of protein), creates employment opportunities, and generates income through sales of eggs, culled birds and manure, thus very important for poverty reduction (Sonaiya, 2007; Raihan and Mahmud, 2008).

Despite of its significant role to household livelihood and national economy, the sector as whole faces a number of problems, including high costs and poor quality of commercial feeds, high veterinary costs, unreliable supply of day old chicks, and limited credit facilities (Minga *et al.*, 2000). These problems limit production growth and increase costs at the production level. Disease outbreaks such as Newcastle, Fowl typhoid, Gumboro, infectious Coryza causes high mortality rate which contribute chicken loss, thus constitute to reducing income from production (Minga *et al.*, 2000).

Apart from production problems, marketing of eggs and maintaining fresh egg quality from producer to consumer is another problem facing those engaged in the business (FAO, 2003). The product by its nature is very delicate, fragile and deteriorates fast if in properly handled and poorly stored. Short-term post harvest lifespan and quality attributes required by consumer of eggs pose a big challenge to egg industry.

The reviewed past research works on commercial poultry egg industry in Tanzania mostly, focused in quality production and productivity. Limited information exists on the whole chain for commercial egg industry that is from production to consumption, how the markets for commercial eggs and its value added are structured, how different functionaries are carried out in channelling the product from producer to consumer, price spread, and marketing efficiency. In addition, extent to which profits are distributed among actors as well as factors that contributes to profitability for the business. While the past research attempted to provide information on quality production and productivity for small, medium and large scale entrepreneurs who strive to maximize returns from their business, it is also important to analyse the whole chain, so that the knowledge on performance of the chain can help to identify the production and marketing inefficiencies as well as consumption problems which can subsequently be improved.

This study aimed at determining economic profit earnings for layers producers as well as egg traders. It also sought to identify existing commercial egg marketing channels, marketing participants and determine pricing structure at different levels of the market chain with the purpose of establishing marketing margins and producer's share of a consumer shilling.

The results of this study would help to provide production, market and consumption information to various stakeholders in egg industry and essentially help to improve income/ gains in a bid to address problems, inefficiencies and improve coordination



of commercial egg value chain. It was also expected that the study would assist policy makers to design appropriate policies and strategies for efficient and sustainable development of profit commercial egg industry.

## **1.4 Objectives of the Study**

### **1.4.1 Overall objective**

The overall objective of the study was to analyse the commercial egg value chain in Ilala Municipal Council in order to provide information and strategies for efficiency and profitable egg industry in Tanzania.

### **1.4.2 Specific objectives**

The study was guided by the following specific objectives;

- (i) To identify the marketing and distribution channels for commercial eggs and relationship among marketing agents
- (ii) To determine the profit margin accrued by different actors in the commercial egg value chain
- (iii) To identify factors that influence profitability at farm/producer level
- (iv) To determine the marketing efficiency of commercial egg value chain in the study area.

## **1.5 Research Hypotheses**

The study was guided by three basic hypotheses

- (i) Traders obtain more profits compared to producers in the study area
- (ii) Access to credit is the major factor that influence profitability to produces in the study area

- (iii) The commercial egg marketing system is efficient in the study area.

### **1.6 Significance of the Study**

It was anticipated that the findings of this study would generate useful information that which would enable stakeholders to understand the gains as well as address problems, and improve efficiency and coordination of commercial egg value chain. Moreover, the results were expected to assist policy makers to design appropriate policies and strategies for efficient and sustainable development of egg industry. The potential users of these findings would be farmers (producers), traders, consumers, financial institutions, government and non-government organizations. Also, researchers who intend to make further investigations on egg marketing would find the results of this study useful.

### **1.7 Organization of the Study**

The study consists of five chapters. Chapter two consists of the literature review of concepts and theories related to the area of study. Chapter three describes the methodology including description of the study area, sampling procedures, data collection methods, and the analysis techniques. Chapter four presents the results and discussion whereas chapter five draws conclusions of the study and provides recommendations based on the major findings of the study.

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## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Overview**

The study presents the theories and empirical evidences on basic concepts used in the study such as value chain, value chain analysis, and value chain actors, marketing, marketing channel and marketing efficiency. Furthermore, it also describes poultry production and consumption, how poultry and poultry products marketing system is organized as well as egg quality attributes required for marketing. Finally, reviews on past studies on value chain analysis, the analytical tools to be used in the study as well as conceptual framework of the study have been clearly presented.

#### **2.2 Theoretical Review**

##### **2.2.1 Value Chain Concept**

Value chain is the full range of activities involved in the system, beginning with a product's conception, through its design, coordination, production, marketing and consumption recycling (Kaplinsky, 2006; Kaplinsky and Morris, 2001). Abucheli *et al.* (2006) and Wastelake (2005) defined value chain as supply chain consisting of activities and processes including production, processing, trading and consumption. According to Ssango (2006) value chain is a specific type of supply chain, one where the actors actively seek to support each other so that they can increase their efficiency and competitiveness. They invest time, effort, money and build relationships with each other to reach a common goal of satisfying consumer needs so as to increase their profits.

Feller *et al.* (2006) defined value chain as the integration of key business processes from end user through original suppliers that provide products, services and information that add value for customers and other stakeholders. Supply chain, however does not necessarily add value. As described by Msuya (2009) value can be added by an increase in price as the result of higher value product, better quality and or better services. In addition, value can be added by increasing in quantity brought about by the larger organisation of smallholders, increased production and acquisition of market share. It is also possible for value to be added by cost reduction as a result of improved productivity.

Gereffi *et al.* (2001) found out that chains vary in the degree of overall control that is exerted in the location of control within the chain, and in how much of it is concentrated on a single firm. Overall control can be almost non-existent, with interactions being mainly driven by market forces, or a chain can be strongly or weakly directed by one or more of its actors. Value chain helps in understanding the way in which producers are connected to the final markets thus influencing their ability to gain from participating in the markets (Gereffi and Kaplinsky, 2001; Gereffi *et al.*, 2005). Similarly, value chain provides an important construct that facilitates the understanding of the distribution of returns from the different activities of the chain (Kaplinsky and Morris, 2001).

Gereffi (2001) identified two main types of value chains: buyer-driven and producer-driven. In the buyer-driven value chains, the buyer at the apex of the chain

plays the critical governing role. Labour-intensive industries common in least industrialized countries are often buyer-driven. In the producer-driven chains, producers with critical technology play the main role of coordinating the various links and take the responsibility of checking the efficiency of their suppliers and customers. The author further described producer driven chains stating that have significant foreign direct investment, and are more often capital and technology intensive industries.

### **2.2.2 Value Chain Analysis Concept**

Value chain analysis is a method for accounting and presenting the value that is created in a product or service as it is transformed from raw inputs to a final product consumed by end users (FIAS, 2007). According to Tallec (2006) value chain analysis is one of the ways of identifying which activities are best undertaken by a business and which are best provided by others.

According to McCormick and Schmitz (2001) value chain analysis highlights the issues of chain coordination or governance. The pattern of direct and indirect control in a value chain is called its governance. Value chain analysis provides a way to understand problems and find ways of improving the situation of the weaker links in the chain, such as those with low returns and little bargaining power (Kaplinsky and Morris, 2001).

Moreover, Msuya (2009) reported that, value chain analysis is an effective means of conceptualizing the forms, functions and integration that actor takes in the

production process, because it shifts the focus from production alone to the varied set of activities that make up the chain. Value chain analysis help in understanding challenges of market access through the identification of nature and extent of barriers to entry along the chain.

According to Lusby and Panlibuton (2004) value chain analysis can help to (a) reveal links between producers, exporters and global markets (b) Identify constraints along the chain to competing in the market place (c) clarify the relationships in the chain from buyer to producers and (d) highlight the distribution of benefits among buyers, exporters and producers in the chain.

### **2.2.3 Concept of Value Chain Actors**

According to Ssango (2006) chain actors are those involved in producing, processing, trading or consuming a particular agricultural product. The actors include direct actors who are commercially involved in the chain (producers, traders, retailers, consumers) and indirect actors who provide financial or non financial support services, such as bankers and credit agencies, business service providers, government, researchers and extensionist. According to the International Institute of Rural Reconstruction (IIRR, 2006) in terms of chain actors, a value chain may be explained as a specific type of supply chain, where by actors actively seek to support each other so that they can increase their efficiency and competitiveness. They invest time, effort and money, and build relationships with each other to reach a common goal of satisfying consumer needs so that they can

increase their profits. In this study the sampled actors included layers produces, traders (collectors, wholesalers, retailers) and egg consumers.

#### **2.2.4 Marketing Concept**

The term marketing has been defined in many ways by different researchers. Kotler (2003) defined marketing as all activities involved in the production, flow of goods and services from point of production to consumers. It is also defined as the set of human activities directed at facilitating and consummating exchange. According to Assegie (2009) marketing refers to as all activities from the producer to the final consumer including processing and distribution system.

Marketing is a process of planning and executing the conception, pricing, promotion and distribution of ideas, goods and services to create and maintain exchanges that satisfy individuals, organizations and events to create exchange that will satisfy individual and organizational objectives (Mlambiti, 1999). According to Mendoza (1995) marketing has an intrinsic productive value, in that it adds time, form, place and possession utilities to products and commodities. Through the technical functions of storage, processing and transportation, and through exchange, marketing increases consumer satisfaction from any given quantity of output.

#### **2.2.5 Marketing Channel Concept**

Marketing channel is a business structure of interdependent organizations that reach from the point of product origin to the consumer with the purpose of moving the products to their final consumer destination (Kotler, 2003). According to FAO

(2003) marketing channels is a set of separate but interdependent organization involved in the process of making a product available to consumers. The use of a marketing channel is convenient particularly when the product does not have the time or financial means to carry out direct marketing.

Eskola (2005) described that, the channel follows a vertical structure where products flow from producer to the ultimate consumer and in which actors meet each other at markets. Producers, wholesalers and retailers as well as other channel actors exist in channel arrangements to perform marketing functions (business activities) that contribute to the product flow. Actors that stand between producers and final users are known as intermediaries.

The effectiveness of the marketing channel is assessed by examining how well the marketing channels meet consumer's and producer's demand for services in relation to their preferences. In a properly functioning market, marketing channels have to guarantee that consumers can buy and producers can sell their products at reasonable prices in a market place, and have to balance supply and demand in each market segment at any time.

#### **2.2.6 The Concept of Marketing Efficiency**

Efficiency in marketing used as measure of market performance. There are two aspects of market efficiency include technical (operational) efficiency and pricing (allocative) efficiency. Technical efficiency is attained when goods and services are provided at a minimum average cost, when the least cost combination of marketing activities is used. Technical efficiency is achieved through technical improvement.



Pricing efficiency is concerned with the price making role of the market system, how accurately, how effectively, how rapidly, and how freely the marketing system makes price, which measure product values to the ultimate consumer and reflects these values through the various stages of the marketing system to the producer (Awolzeberga, 2010).

According to Ramakumar (2001) marketing efficiency is essentially the degree of market performance. It is defined as having the following two major components: (a) the effectiveness with which a marketing service would be performed and (b) the effect on the costs and the method of performing the service on production and consumption

### 2.2.7 Poultry Production and Consumption

The data available indicated that world production of chicken eggs and meat between 1990 and 2005 increased in various continents (Table 1). Africa, Asia and Southern America showed the greatest increase in egg production, with a decrease in both Europe and Oceania. Chicken meat production continued to increase in all continents with the highest increase in Asia and South America (FAOSTAT, 2005a).

**Table 1: World chicken eggs and meat production (“1000” t)**

Continent	Chicken eggs			Chicken meat		
	1990	2005	% chang	1990	2005	% change
Africa	1 420	2 230	57	1 790	3 189	78
North & Central America	5 790	8 052	39	12 830	22 653	77
South America	2 310	3 518	52	3 850	13 697	256
Asia	14 270	40 055	181	9 390	21 989	134
Europe(include former USSR)	11 710	10 035	-14	11 520	11 802	2
Oceania	250	227	-9	480	942	96

Source: FAOSTAT (2005a)

The contribution of the continents to global chicken meat and egg production has varied considerably since 1970 (Table 2). In 2005 Asia led the world in chicken meat production, followed by North and Central America while in egg production Asia continued to lead in 2005 followed by Europe (Windhorst, 2006). China is by far the largest producer of chicken eggs and meat in the Asian continent, with a production of 28 674 000 tones of eggs and 10 233 000 tones of chicken meat (FAOSTAT, 2005a). India is the second largest producer followed by Japan. Asia produces over 60% of the total world production of eggs, an increase from 24% in 1970 (Windhorst, 2006).

**Table 2: The contribution of continents to global chicken meat and egg production between 1970 to 2005 data in %**

Continent	Chicken meat			Chicken egg		
	1970	1990	2005	1970	1990	2005
Africa	4	5	4.2	3	4.4	3.7
Asia	17.9	24.4	34	23.7	24.4	60.4
Europe	28.1	20.6	16	30.9	20.1	16.9
USSR	7.1	8	—	11.5	13	—
North & Central America	36.2	31.3	28.4	25.3	16.4	13.6
South America	5.8	9.5	15.7	4.3	6.3	5.1
Oceania	0.9	1.2	1.2	1.2	0.7	0.4
World	100	100	100			

Source: Windhorst (2006)

In Tanzania, the available data indicated that chicken egg production has gradually increased from 9.1 million in 2003/04 to 2.9 billion in 2009/10. On the other hand chicken meat increased from 63 000 tones to 80 196 in the same years (Table 3). The recorded increase resulted from improved husbandry practices and campaign on the control of New castle disease (URT, 2010).

**Table 3: Production trends of chicken eggs and meat in Tanzania.**

Year	Annual production	
	Chicken eggs (“000”)	Chicken meat (Tones)
2003/04	910 000	63 000
2004/05	1 800 000	68 896
2005/06	2 145 000	69 420
2006/07	2 230 000	77 280
2007/08	2 690 000	77 250
2008/09	2 806 350	78 168
2009/10	2 917 875	80 916

Source: MLDF (2010)

Rising income and urbanization in many parts of the developing world caused a growing demand for alternative food resources like animal products. There are only few alternative animal protein sources available in the tropics including chicken and chicken products (Odunsi, 2003). In 2005 per capita egg consumption in selected countries (Table 4) indicated that Hungary was leading in egg per capita consumption of 295 and the least being India with egg per capita consumption of 46 (International Egg Commission, 2006). According to FAOSTAT (2005 b) during the same year (2005), USA was leading in broiler meat per capita consumption which accounted to 44.24 kg and India having the lowest per capital broiler meat consumption of 1.72kg. However, per capita consumption remained less than that recommended by FAO (300 eggs) for sustainable human growth and development.

**Table 4: Per capita consumption of eggs and broiler meat in selected countries in 2005**

Country	*Eggs (number)	**Broiler meat (kg)	Country	*Eggs (number)	**Broiler meat (kg)
Argentina	174	18.54	South Africa	107	24.7
Brazil	130	37.27	India	46	1.72
Iran	133	4.88	Thailand	105	10.54
Canada	188	31.82	France	251	14.24
Hungary	295	27.81	Russia Federation	259	16.45
USA	255	44.24	UK	172	26.76

Source: \* International Egg Commission (2006); \* \*FAOSTAT (2005b)

In Tanzania per capita consumption of eggs per year has reported to increase over the years from 23 in the year 2003/04 to 75 in the year 2009/10 (Table 5). However, the consumptions are still lower than that recommended by FAO (300 eggs) per capital needed for sustainable human growth and development (URT, 2010).

**Table 5: Production and consumption of chicken eggs from 2003/04 - 2009/10 in Tanzania**

Year	Chicken egg production ('000')	Per-capita Chicken egg consumption (Number)
2003/04	910 000	23
2004/05	1 800 000	26
2005/06	2 145 000	49
2006/07	2 230 000	64
2007/08	2 690 000	64
2008/09	2 806 350	72
2009/10	2 917 875	75

Source: MLDF (2010)

### 2.2.8 Marketing of Poultry and Poultry Products

Agricultural products including poultry and poultry products are perishable and delicate, thus require proper handling, storage, packaging and careful transportation. Furthermore it needs organized and coordinated marketing system, so as to ensure the products reach the consumer in a quality and form that is desired. A study by FAO (2003) found out that, marketing of poultry and poultry products can be direct marketing in which producers may decide to market their produce directly to consumers or may choose a variety of marketing organization that make up a marketing channel. Direct marketing includes sale from the farm (farm gate); door-to-door sales; producer's markets; and sales to local retailers, while, a typical marketing channel is made up of collectors, assembly merchants, wholesalers, and retailers. Nevertheless, ideal marketing channels involve the flow of eggs from;

Producer → collector → assembly wholesaler → wholesale distributors' → retailer → consumer (FAO, 2003)

A study by Branckaert and Guèye (2000) observed that poultry products in most developing countries, especially in Africa, are still expensive and that the marketing system is generally informal and poorly developed. Boki (2000) reported that in Tanzania movement of products from one place to another is a major problem. Additional marketing of poultry and poultry products in urban, peri-urban, and rural areas is a problem. Commercial poultry farmers for layers or broilers are disorganized and there is no proper marketing system. Producers sell their products (eggs or live broilers) to consumers directly or through middlemen, while grading of broilers is done only in small processing plants, and eggs are sold as eggs without

grading. These findings imply that marketing system of poultry products is disorganized.

Similarly, FAO (2008) observed that a disorganized market system prevailing in Tanzania affects poultry production and its profitability particularly for small holder farmers. Similar observations were reported in Zimbabwe by Kusina and Mhlanga (2000) that organized marketing was non-existent, lack of organized marketing militated against enhanced revenue generation. This is particularly critical for broilers and eggs as farmers incur major losses as they continue to feed broilers until a market becomes available. Also, poultry marketing system in Ethiopia is informal and poorly developed (Dinka *et al.*, 2010; Awolzeberga, 2010; Assegie, 2009; Mekonnen, 2007)

#### **2.2.9 Egg Quality Attributes for Marketing**

Kramer (1951) defined food quality as “the sum of characteristics of a given food item which influence the acceptability or preference for that food by the consumer”. Egg quality will mean different things to different people, and the consumer’s perception of quality is likely to vary depending on their intended use of the egg and their own preferences. Various studies show that external and internal qualities are of major importance to the egg industry world wide. FAO (2003) in their study found that, most important external egg quality based on egg shell which is characterized by cleanliness; unbroken (soundness); smooth and shape. In addition quality determines the acceptability of a product to potential

customers. Consumers have adverse reaction to cracked or dirty eggs. Even though shell colour has no indication of quality but consumers in some markets may prefer white or brown eggs. Internal egg quality is based on albumin and yolk quality. Any abnormalities in the egg yolk and albumen may result into loss of consumers.

Nour (2008) reported that, egg industry needs accurate and reliable information about the egg in order to grade it precisely and to provide quality to consumers that meet their requirements with respect to egg quality and standards. The overall quality of the chicken egg is determined by the egg shell quality and egg internal quality. Both of them are of paramount importance to the egg industry and appearance of the egg is important for consumer appeal. Egg shell quality is based among others on egg size, shell colour, and shell thickness. In addition, shells must be strong enough to resist breaking during packing and/or transportation. According to Yang et al. (2009), clean and intact eggshells are also required to ensure consumer satisfaction and dietary safety. Eggshell quality is largely based on two characteristics of the shell: its strength and its colour. When the eggs are of low quality, it is likely that the producers will incur losses.

#### **2.2.10 Past Studies on Value Chains Analysis in Tanzania**

A number of studies have been done on value chain analysis for agricultural products. Mbiha (2008) analysed dairy milk value chain in the Dar es Salaam milk shed. The study examine characteristics of dairy value chain in the study area,

organisation, coordination and functioning of key actors in the chain. Furthermore, it also examined pricing and profit accrued by actors at various nodes of dairy value chain. The methodologies used included concentration ratio, and marketing and profit margin analysis. The findings indicated that price and margins differed among value chain actors, with milk processors obtaining higher prices and profit margins. The study findings also showed that milk producers and processors were strongly organized and coordinated than milk marketing agents and consumers.

Likewise, Mgaya (2008) studied value chain analysis of rice marketing in Kilosa. The study investigated the organizational structures and interaction of rice traders along the value chain of rice marketing. It also identified the constraints facing traders performing domestic rice marketing functions, and further examined the gross margin at different functional segments of rice traders along the chain. In addition, Mgaya examined the market structures of rice stockholding marketing function. The study was based on Market Channel Baseline Analysis (MCBA), Gross Margin analysis and Concentration Ratio. The findings indicated that wholesalers were making more profit compared to other chain actors, while low profit was typical to retailers. The rice stockholding enterprise exhibited the typical characteristics of an oligopolistic structure, with the Concentration Ratio of 67.67%. It was further revealed that, the value chain of rice marketing was not a single chain structure, rather a complex and impermanent between market participants.

The study by Cosmas (2008) assessed the wholesale - consumer segment of the value chain for fresh fruits and vegetables in Dar es Salaam. The study examined



characteristics of Fresh Fruit and Vegetables (FFV) marketing and distribution practices within the wholesale - retail segment of the value chain. It also attempted to estimate gross margin, and identified factors that influenced consumers' preference about where to purchase. The author identified factors contributing to customer satisfaction and importance of various types of retail outlets serving different income categories of consumers. Methodologies employed were descriptive, gross margin and Logit regression analysis models.

The results indicated that retailers were found out to receive higher returns than wholesalers in many products including tomato, dry onions, cabbages and oranges. However, wholesalers were found out to obtain more profit on selling amaranth than retailers. Moreover, the finding further revealed that most consumers at Shoprite supermarket indicated reliability of supply, product freshness, market premises, product packaging, customer's service care and food safety as important factors. Supermarkets were found out to be important markets for high income levels while open air markets were mostly relied upon by the majority of middle and low income groups.

#### **2.2.11 Past Studies on the analysis of Commercial poultry Egg Industry**

Commercial poultry egg industry is among agricultural industries that are growing fast worldwide, there are many studies which have been done to provide a better understanding of the same. In Nigeria, a study by Ekunwe and Alufohai (2009); Afolabi (2007) evaluated poultry egg marketing while Iheanacho (2005) studied on structural Characteristics and performance of retail marketing of eggs. Ojo (2003) and

Haruna *et al.* (2007) focused on technical efficiency of egg production. Meanwhile, Nour (2008) assessed chicken egg quality from visible near infrared observation in Canada. In Japan, Yang *et al.* (2009) studied relationship between egg shell colours and egg quality.

In Tanzania Oleke (2008) focused on technical efficiency of egg production under intensive system. Kaijage (2003) studied effect of substituting sunflower seed meal with moringa oleifera leaf meal on the performance of commercial egg stain chicken and quality, while Kusolwa (2002) assessed effect of substituting fish waste for fish meal in egg production and egg quality in laying chicken. Many of these studies focused on production and productivity as well as marketing aspects. However, studies that looked at whole commercial poultry egg industry from production to consumption are limited.

## **2.3 Empirical Review of Analytical Tools for the Study**

### **2.3.1 Value Chain Analysis**

Value chain analysis (VCA) is a method for accounting and presenting the value that is created in a product or service as it is transformed from raw inputs to a final product consumed by end users. VCA typically involves identifying and mapping the relationships of four types of features: (a) the activities performed during each stage of processing (b) the value of inputs, processing time, outputs and value added (c) the spatial relationships, such as distance and logistics, of the activities; and (d) the structure of economic agents, such as suppliers, the producer, and the wholesaler (FIAS, 2007). Hallam and Sarris (2006) stated that value chain analysis

seeks to explain who undertakes what activities in the production and transformation of a product and why and how the income generated and distributed between participants in these processes. Value chain analysis tools employed explained below;

**(i) Profit margin analysis**

Profit margin is the difference of the final price the customer pays and the sum of all costs incurred with the production and delivery of the product/service. The term “margin” implies that the organizations realize a profit margin that depends on their ability to manage the linkages between all activities in the chain. The organization is able to deliver a product/ service for which the customer is willing to pay more than the sum of the costs of all activities in the value chain (Porter, 2001). Analysis of profit margin or returns aims to verify the existence of above average profits. If markets were perfectly competitive, net returns would roughly equal a fair return to ones capital. However, oligopolistic market structure would tend to increase returns as price distortions as well as bias buying and selling practices (Pomeroy and Trinidad, 1995). Returns are calculated on the basis of estimated or actual costs and selling price per unit of sale and volume of products sold. One of the advantages of the model is that it takes into account of fixed cost structures of the enterprise hence provide real profit figure (Scott, 1995). However, the weakness of the model lies on the fact that it is difficulty for

farmers and enterprise owners to compute opportunity costs for their money invested in the enterprises and their own or family labor.

## **(ii) Marketing margin analysis**

Marketing margin analysis is a measure or indicator of market performance. Analyzing market margins are means of assessing the efficiency of price formation in and transmission through the system (Scarborough and Kydd, 1992). Marketing margin is the difference between the price paid by the consumer for one unit of a certain product of a specific quality and the price received by the producer for the farm equivalent of the unit. It measures the per unit charges made by the marketing agencies and it includes, as far as possible, all charges that take place from the farm gate to the retail purchase (Ali *et al.*, 2008; Ekunwe and Alufohai, 2009; Scarborough and Kydd, 1992).

According to Scarborough and Kydd (1992) there are three methods generally used in estimating marketing margin. These include (a) detailed analyses of the accounts of trading firms at each stage of the marketing chain (time lag method), (b) computation of share of the consumer's price obtained by producers and traders at each stage of the marketing chain, (c) comparison of prices at each level of marketing over the same period of time (concurrent method). In addition, the size of market margin is largely dependent upon a combination of (a) the quality and quantity of marketing services provides (b) the cost of providing such services, (c) the efficiency with which they are undertaken and priced.

Adekanye (1988), cited by Ekunwe and Alufohai (2009) regarded small margins as proof that distribution or marketing is efficient. Big margins may result in little or no profit or even loss for the sellers involved depending upon the marketing costs as well as on the selling and buying prices. However, according to Scarborough and Kydd (1992) gross marketing margin cannot be treated as an indicator of economic performance since low margin may coexist with inefficient use of resources, poor coordination and poor consumer satisfaction as well as disproportionate profit level. According to Mdoe and Mnenwa (2004) high marketing margins may imply high marketing costs and /or profits. They are of view that, if one or two or both are extremely high or low, it indicates that the market is not efficient in coordinating allocation of resources. For an efficient market, marketing costs and profits ought not to be too low or too high.

## **2.4 Conceptual Framework**

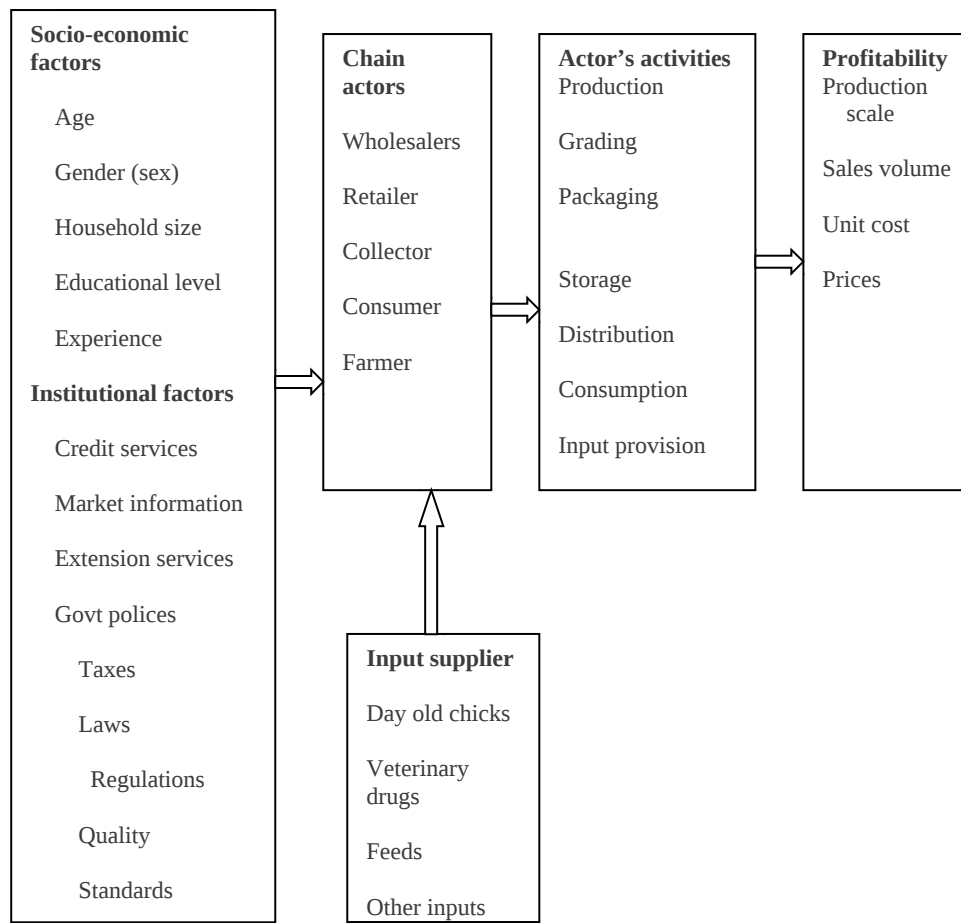
The study adapted a conceptual framework developed by Kamugisha (2006). The conceptual framework illustrates some of the factors that may influence profitability for commercial egg chain actors in the study area (Fig. 1). Actions of different actors (the producers and traders) are considered in determining performance of the chain and can be measured in terms of profit margins accrued by actors at each level of the chain. The magnitude of the profit margins is therefore considered to be determined and or influenced by aspects such as socioeconomic variables and institutional factors.

Socioeconomic variables, such as age, sex, household size, educational level and experience in production/business are essential factors that influence profitability among actors in the value chain. Age of households are believed to determine individual maturity and ability to make rational decisions such as how much to produce and supply more to the market which in turn influence profit. Similarly, gender determines participation /engagement in production or in marketing business. The household size influences the level of consumption as well the supply of family Labour. Large family size is relevant to family labor because it constitutes the bulk of labour supplies in the family production and marketing business. Increase in years of schooling and experience determine readiness and adoption of new ideas, innovations, improved technology techniques and marketing strategies which in turn influence scales of production and sales volume, thus results to profitability.

Institutional factors such as government policies, extension services, and credit and information services have much to contribute to performance of actors along the chain in terms of production and marketing which finally influences profit margin among actors. Government policies on taxes, subsidies, legislations, quality and standards influence consumption, production and marketing of eggs. The tax is a cost in a business which at the end determines prices paid by consumers, hence effecting consumption level. Subsidies reduce costs of production and encourage production, and thus increase in supply. Quality and standards stimulate consumption, because of increase in demand for quality and standard products

required by consumers. However, producing and maintaining quality and standard products is costly to producers and marketers. In view of this, these factors/variables may influence consumption level as consumers have to pay more. Production and supply may be affected because of high costs of maintaining quality and standards.

Market information enables producers and traders to expand, contract or keep production and marketing sales constant. Likewise, information allows the producer to allocate production resources more efficiently. Access to credit enhances financial capacity of farmers and traders thus increase production and volume to be supplied to the market. Lastly, access to extension services improves production skills as well as marketing strategies which in turn influence production and marketing sales and profitability among chain actors.



**Figure 1: Conceptual Framework for Analyzing Commercial egg value chain**

Source: Modified from Kamugisha (2006)

## CHAPTER THREE

### RESEARCH METHODOLOGY



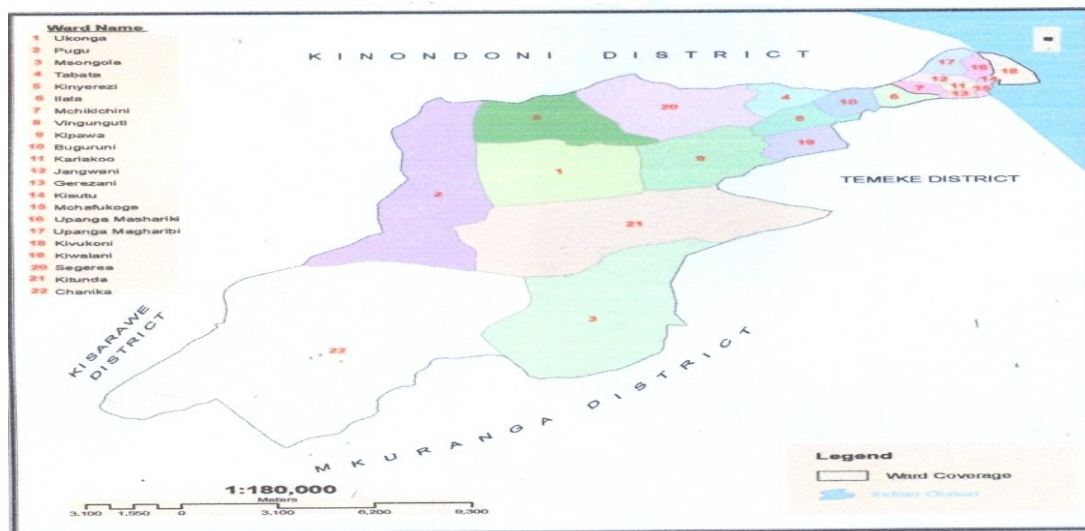
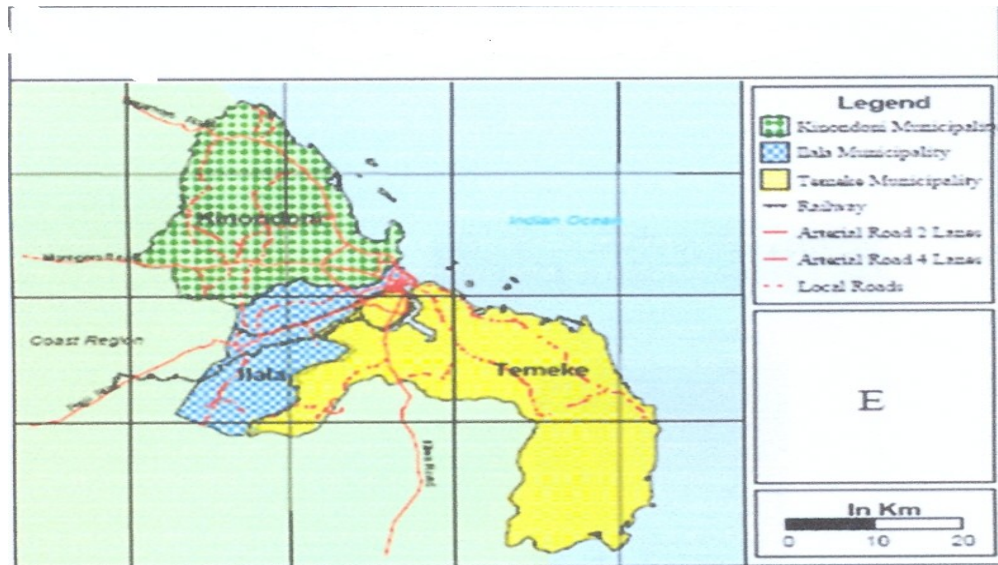
### **3.0 Overview**

The chapter consists of five sections. The first section presents a description of the study area. The second section justifies the selection of the study area. While section three explains the data collection procedures, section four dwells on sampling procedures and questionnaire administration. The fifth section elaborates on data analysis techniques.

### **3.1 Description of the Study Area**

The study was conducted in Ilala Municipal Council (Fig. 2). Ilala Municipal Council is among the three Municipal Councils of Dar es Salaam Region. Administratively it is divided into 3 divisions, 22 wards, 65 sub wards, 9 villages and 37 hamlets. In its Eastern part it borders with Indian Ocean. In the Southern part, it is bordered by Temeke Municipality, whereas in Western, it is bordered by Kisarawe district and Kinondoni Municipality is in the Northern. Its altitude ranges between 0 and 900 meters above sea level and the ecological characteristics of the Municipality are greatly influenced by the altitude. The study area consists of a larger lowland area and small part forming an upland zone. It occupies an area of 210 square kilometres where 200 square kilometres is a surface land and the remaining 10 square kilometres is occupied by water. The study area has a humid temperature that varies from 26<sup>0</sup>C in August to 35<sup>0</sup>C in December and January each year. The long rain season is March to May, which receives an average monthly rainfall of 150mm – 300 mm. On the other hand, the short rain season is between October and December with monthly average rainfall ranging from 75mm – 100mm. According to the 2002 Tanzania National Census, the population of the

Ilala Municipal Council was 634 924 with an average growth rate of 4.6%. The economic activities of the study area include Agriculture (25%), livestock (60%) natural resources, industries and trade (15%).



**Figure 2: Ilala Municipal Council in Dar es Salaam Region.**

Source: Ilala Municipal Council GIS (2005)

### **3.2 Rationale for Selection of the Study Area**

Dar es Salaam region was selected due to the fact that it is among the top five regions that are most popular in layers production. This is according to the National Sample Census of Agriculture, 2002/2003. The Ilala Municipal Council was selected as the study area because it has significantly more farmers who are engaged in layers production than Kinondoni and Temeke Municipal Councils. The Council was also selected as it is the main market for almost all agricultural products in the country including eggs.

### **3.3 Data Collection**

A cross sectional research design was employed in the data collection process. Both primary and secondary data were collected in the study area. Primary data were collected through the use of structured questionnaire (Appendix 1) and administered to layers producers, traders and consumers selected in the study area. The information gathered included demographic characteristics of actors, production and marketing costs, annual returns, credit, extension and market information services, egg quality attributes, as well as production and marketing constraints.

Secondary sources included theses, reports, research reports, publications and books from Ilala Municipal Agricultural and Livestock Office, Sokoine National Agricultural Library in Morogoro (SNAL), Ministry of Livestock Development and Fisheries, and Internet sources. Information collected included poultry and poultry products (meat, eggs) production, marketing and consumption trends.

### 3.4 Sample Size and Sampling Procedures

Purposive sampling was employed to select the study area together with wards to be included in the study. Selection of wards for the study was done in collaboration with livestock officers from MALDO's office. The criteria used to select wards were areas that are more engaged in layers production and marketing of eggs. A total of 120 value chain actors, including 60 producers, 45 traders (15 wholesalers, 15 retailers and 15 collectors) and 15 consumers were selected and interviewed in the study (Table 6). In addition, random sampling was used to select 60 producers from the list obtained from extension officers in the wards selected for the study. Wholesalers and retailers were selected randomly from the identified main markets in the study area. On the other hand, Collectors were traced and timed when coming back to their selling points, this followed information obtained from producers on how to trace and timing the collectors. Only those who were willing were interviewed. Consumers were identified and interviewed basing on the information obtained from producers and traders.

**Table 6: Sample distribution of value chain actors**

Ward	Value chain actors					Total
	Producers	Collectors	Wholesalers	Retailers	Consumers	
Kitunda	15	11	0	0	2	28
Kipawa	15	1	0	0	2	18
Ukonga	15	0	0	6	7	28
Msongola	15	3	0	0	0	18
Kisutu	0	0	4	0	0	4
Kariakoo	0	0	4	4	4	12
Buguruni	0	0	4	5	0	9
Ilala	0	0	3	0	0	3
Total	60	15	15	15	15	120

### **3.5 Questionnaire administration**

The interview was conducted from October to December, 2010. A structured questionnaire was designed to collect both qualitative and quantitative data from sampled actors. Experienced extension officers were engaged to assist in the data collection in their respective wards. The interviews were conducted at the producers' residences, wholesalers' market area, and retailers at their shops. However, collectors were interviewed as they were found on their way to places of residence. Consumers were interviewed at their residence and others at food kiosk. For accurate purpose, the interviews were conducted in Swahili language.

### **3.6 Data Analysis**

#### **3.6.1 Qualitative analysis**

Descriptive statistics including tables, means, percentages, frequencies, standard deviations, were used to analyze information on social-economic characteristics of the respondents, access to credit, extension and market information services, production and marketing constraints.

#### **3.6.2 Quantitative analysis**

As for quantitative analysis, profit margin, marketing margin and regression analysis were employed.

##### **3.6.2.1 Profit margin analysis**

Profit margin is the difference between the total income of the enterprise and the sum of all costs incurred with the production and delivery of products or services

including variable costs, fixed costs and intermediate costs. Profit margin analysis was aimed at establishing net returns gained by actors at various points of commercial egg value chain. At every point of the value chain, profit margin was obtained by subtracting the total cost, variable as well as fixed costs of production and marketing from the value of total revenue as shown below:

$$PM_i = \sum TR_i - \sum (TVC_i + TFC_i) \quad (1)$$

Where;  $PM_i$  = Profit margin at point i

$TR_i$  = Total revenue at point i

$TVC_i$  = Total variable cost at point i

$TFC_i$  = Total fixed cost at point i

i = represent points along the chain such as producer, wholesalers, retailers, collectors.

### 3.6.2.2 Regression analysis

Multiple linear regression models were employed to identify/determine factors that influence profitability at farm/producer's level. Multiple linear regression models used to study the relationship between a dependent variable and more independent variables.

The study specified the model as follows;

$$Y = \alpha_0 + \sum_{n=1}^n \beta_n X_n + \varepsilon_0 \quad (2)$$

Y = Profit margin

$\alpha_0$  = Constant term (y- intercept)

$\beta_n$  = Coefficients for independent variables

$X_n$  = Independent variables (Table 7).

$\varepsilon_0$  = Error term (disturbance term) - (is a parameter that represent all those factors affect dependent variable but are not taken into account explicitly).

Description of the dependent and independent variables used in the model are summarized in Table 7. The study tested the presence of multicollinearity among the variables and independence of errors. According to Gujarati (2004), multicollinearity is a situation where independent variables are highly correlated. The study employed Variance Inflation Factor (VIF) as a measure to detect presence of multicollinearity. As a rule of thumb, if VIF value exceeds 10, then that variable is said to be highly collinear (Gujarati, 2004). Durbin-Watson was used to test for independence of errors. A value greater than 2 indicates a negative correlation between adjacent residuals whereas a value below 2 indicates a positive correlation.

**Table 7: Description of dependent and independent variables used in the model**

<b>Variables</b>	<b>Category</b>	<b>Values</b>
<b>Dependent variable</b>		
Profit margin	Continuous number	Tshs
<b>Independent variables</b>		
Age of respondents	Discrete number	Number of years
Educational level	Discrete number	Years of schooling
Household size	Discrete number	Number of people
Experience	Discrete number	Number of years
Sex of respondents	Dummy	1= Male, 0= Female
Extension services	Dummy	1=Yes, 0=No
Access to credit	Dummy	1=Yes 0=No
Packaging costs	Continuous number	Tshs

### 3.6.2.3 Marketing margin analysis

Marketing margin measures the share of the final selling price that is captured by a particular agent in the value chain. It is the cost of providing a mix of market services by market participants. When there are several participants in the marketing chain, the margin is calculated by finding the price variations at different segments and then comparing them with the final price to the consumer. Consumer/retail price is the base or common denominator for all marketing margins.

The relative size of various market participants' gross margins can indicate where in the marketing chain value is added and/or profits are made. Marketing costs and margin analysis is especially comparison of prices at different levels of marketing over the same period. The chain actor's Gross Marketing Margin (GMM) and Producer Gross Margin (GMM<sub>p</sub>) were calculated as indicated in equation 1 and 2.

$$GMM = \frac{SP - SP_{i-1}}{CP} \times 100 \quad (3)$$

$$GMM_p = \frac{CP - MM}{CP} \quad (4)$$

Where;

CP = Consumer/retail price

PP = Producer/farm gate price



GMM = gross marketing margin of different actors along the chain

SP = selling price by different actors along the chain at a given point in the value chain

$SP_{i-1}$  = selling price by preceding agent (i-1) is the buying price paid by n actor at a preceding point in the value chain

GMM<sub>p</sub> = Producer gross margin (Producer share)

MM= Marketing margin

## **CHAPTER FOUR**

### **RESULTS AND DISCUSSIONS**

#### **4.1 Over view**

The chapter presents a description of socio economic, and production as well as marketing characteristics of the value chain actors involved in the study area. In addition, the chapter dwells on the observed distribution channels for commercial eggs. Lastly, the chapter reports on the profit margin, marketing margin, and regression analysis results of the study. Discussions on the same have also been comprehensively presented.

#### **4.2 Characteristics of Producers**

##### **4.2.1 Age of respondent**

The results in Table 8 show that, 63% of the interviewed producers were in the age group of 31 to 50 years while 22% were aged above 50 years. The remaining 15% fell from 18 to 30 years. The implication is that the respondents were in productive active age, mature and energetic enough to undertake layers production activities

##### **4.2.2 Sex of respondent**

A total of 60 producers were interviewed. Out of these, 60% were male heads of households and the remaining 40% were females. The male dominance in layers production could be attributed to the predetermined role played by men in terms of decision-making on issues related to poultry management and other family issues. The findings differed with the study by Haruna *et al.* (2007) on egg

production in Nigeria which indicated that females dominated the business.

#### 4.2.3 Educational level

Table 8 presents results on education of the respondents. It is clearly shown that, 70% of all respondents had attained primary school education while 20% had accomplished secondary education and only 7% attained college/university education. Interesting is that only 1 out of 60 producers had not gained any formal schooling. The implication is that, majority of the household heads in the study area have basic education which enable them to adopt better agricultural production and marketing technologies available from different sources such as extension agents, or through publications and mass media.

**Table 8: Age, sex, education level and experience of respondents**

<b>Variables of respondents</b>	<b>Frequency</b>	<b>Percent</b>
<b>Age structure</b>		
18 to 30years	9	15
31 to 50 years	38	63
Above 50 years	13	22
<b>Total</b>	<b>60</b>	<b>100</b>
<b>Sex of the respondent</b>		
Male	36	60
Female	24	40
<b>Total</b>	<b>60</b>	<b>100</b>
<b>Educational level</b>		
None	1	2
Primary school education	43	72
Secondary school education	12	20
College/university education	4	6
<b>Total</b>	<b>60</b>	<b>100</b>
<b>Experience in production</b>		
1-2 years	4	7
2-5 years	21	35
More than 5 years	35	58
<b>Total</b>	<b>60</b>	<b>100</b>

#### **4.2.4 Experience of the respondent**

On this variable as shown in Table 8, it was found out that, 58% of all respondents had more than 5 years of farming experience while 42% had 1 – 5 years of the same. This means that most of the producers in the study area had significant experience in the production. The experiences in farming have impact on production and productivity since farmers with adequate farming experience are better placed to be knowledgeable on the farming environment, among others. This in turn enables them to be innovative and hence increased production, productivity as well as quality of the produce.

#### **4.2.5 Household size of respondents**

The study results indicate that, the minimum household size for interviewed producers was 4, while the maximum number of people was 16 and the average size of the household was 7. Household size distribution of the sampled producers is presented in Table 9. It was found out that 78% of the interviewed producers had less than 9 persons in their households while 22% had household sizes of 9 and above persons. This implies that household size is important in egg production, as members help each other in most of the work on the farm (Haruna *et al.*, 2007).

**Table 9: Distribution of Household size of respondents**

<b>Number of people in the family</b>	<b>Frequency</b>	<b>Percent</b>
4.00	7	12
5.00	15	25
6.00	9	15
7.00	8	13
8.00	8	13
9.00	5	8
10.00	3	5
11.00	1	2
12.00	3	5
16.00	1	2
<b>Total</b>	<b>60</b>	<b>100</b>

#### 4.2.6 Primary and secondary occupation of respondents

Table 10 indicates that most (80%) of the sampled respondents reported farming as the main or primary occupation while (20%) indicated non farming as the major occupation. These findings were expected due to the fact that layer producers were purposively sampled. It was revealed that layer producers engage in other occupations as additional sources of income. In this regard, 11 out of 19 (58%) were found out to be petty traders and 6 (32%) were employed. Only 10% of all respondents were engaged in handcraft and large scale business. These producers largely depended on either trading activities or formal employment for additional income earnings.

**Table 10: Main occupation and non- farming income activity of respondents**

<b>Variables</b>	<b>Frequency</b>	<b>Percent</b>
<b>Primary occupation</b>		
Farming	48	80
Non farming	12	20
<b>Total</b>	<b>60</b>	<b>100</b>
<b>Secondary occupation</b>		
Employment	6	32
Handcraft	1	5
Petty trade	11	58
Big business	1	5
<b>Total</b>	<b>19</b>	<b>100</b>

#### 4.2.6 Flock Size (Number of layers kept)

Table 11 shows the distribution of respondents according to their flock size. The results show that majority (73%) of respondents keep layers ranging from 100 to 500 while 17% had layers ranging from 500 to 1000. Only a few (3%) keep layers less in numbers than 100 and 7% had layers above 1000. This implies that majority of the respondents are small scale poultry farmers (egg producers). The findings concur with those of Boki (2000), who observed that small scale poultry farmers in Tanzania keep 100 – 2000 birds, and only about 5% (5000 or more birds ) are kept by large scale poultry farmers. Another study by Oleke (2008), also found out that majority of farmers kept layers ranging from 100 – 1600.

**Table 11: Flock Size**

<b>Variables</b>	<b>Frequency</b>	<b>Percent</b>
Less than 100	2	3
100 to 500	44	73
500 to 1000	10	17
1000 and above	4	7
<b>Total</b>	<b>60</b>	<b>100</b>



**Figure 3: Layers flock in floor (deep litter) system**



**Figure 4: Showing a laying chicken in a nest.**

#### **4.2.7 Access to extension services**

Extension services are pertinent in imparting or transferring knowledge, skills, and improved technologies to farmers as well as sharing information and experience in order to increase production and productivity (URT, 2006). Farmers who have frequent contacts with extension workers have better access to market information (price trends, supply and demand situations), and also more likely to adopt technologies, and production innovations that enhance production and productivity. Producer's access to extension services is presented in Table 12 in which results indicate that, 48 out of 60 producers had access to extension services while the remaining 12 had no access to extension services. The results suggest that majority of producers in the study area were aware of the existence and importance of extension services.

#### **4.2.8 Access to credit services**

In spite of the evident need of financial services by poultry farmers especially layer producers, credit facilities are very limited. The study results depict that, 41 out of 60 interviewed producers had no access to credit services and the remaining 19 had managed to access the same. However, during the interview, producers pointed out a number of reasons that limit them from accessing credits.

Table 12 shows the summary of factors that limit access of credit. As the table indicates, about 49% of respondents reported difficulties in accessing credits, as they are demanded to form groups, or have someone to **guarantee** or otherwise to produce fixed properties as collateral. It was found out that 34% and 17% reported



high interest rates and fear of loan respectively. The results imply that the credit system in Tanzania is not favorable to small scale farmers. However, the actual situation is that majority of farmers do not apply for loans as they fear that their properties can be auctioned when they default repaying the loans.

**Table 12: Access to extension and credit services**

<b>Variables</b>	<b>Frequency</b>	<b>Percent</b>
<b>Access to extension services</b>		
Yes	48	80
No	12	20
<b>Total</b>	<b>60</b>	<b>100</b>
<b>Access credit services</b>		
Yes	19	32
No	41	68
<b>Total</b>	<b>60</b>	<b>100</b>
<b>Reason not access credit</b>		
Difficulties in accessing credit from financial institution	20	49
High interest rate	14	34
Afraid of loan	7	17
<b>Total</b>	<b>41</b>	<b>100</b>

#### **4.2.9 Access and sources for market information**

Market information is relevant for producers and traders as it enables them to produce and trade based on market requirements. Farmers marketing decisions are based on market price, supply and demand information. In this light inaccurate and inadequate information on price, demand and supply leads to inefficient production and marketing decisions (Awolzeberga, 2010). Table 13 shows that, all sampled producers had access to price information. On the other hand, the interviewed respondents mentioned various sources of egg market information. On this matter, 47% of respondents sourced market information from neighbours and friends while 36% accessed the information through crosschecking with middlemen and 17% obtained through direct visits to the market places.

**Table 13: Access and source to market information**

	<b>Frequency</b>	<b>Percent</b>
<b>Access market information</b>		
Yes	60	100
<b>Source market information</b>		
Direct visit to market	10	17
Crosscheck with middlemen	22	36
Neighbors and friends	28	47
<b>Total</b>	<b>60</b>	<b>100</b>

#### 4.2.10 Sorting and grading of eggs

FAO (2003) described grading as arranging produce into a number of uniform categories according to physical and quality characteristics of economic importance. It is a process of identification, classification and separation. In the same vein, egg grading entails sorting the eggs into categories based on size and shape of egg, uncracked egg shell, cleanliness of egg shell (free from blood or faeces stains) and colour egg shell (white or brown).

Table 14 indicates that, 57 out of 60 sampled producers carried out sorting and grading of eggs, while only 3 did not perform sorting and grading. The results vary with the report of Boki (2000) who reported that in Tanzania eggs were sold without grading. The observed results can be attributed to the fact that currently consumers have changed as they demand quality and safe products. As such, sorting and grading are now important activities in a bid to add value to the produce.

Furthermore, Table 14 shows the criteria for sorting and grading eggs. It was found out that most (55%) of the interviewed producers cited both size; and cracked or dirty egg shell as criteria for sorting and grading while 22% indicated only cracked egg shell as the criterion and the remaining 20% reported that sorting or grading

was based on the size of egg. The grading system applied by the majority of producers is quite similar with the grading system reported elsewhere in Canada, New Zealand, USA and European Union.

**Table 14: Sorting and grading of eggs**

<b>Variables</b>	<b>Frequency</b>	<b>Percent</b>
Yes	57	95
No	3	5
<b>Total</b>	<b>60</b>	<b>100</b>
<b>Criteria for sorting and grading</b>		
Size of eggs (small, large)	12	20
Colour of egg shell (white, brown)	2	3
Cracked egg shell	13	22
Size, cracked, dirty egg shell	33	55
<b>Total</b>	<b>60</b>	<b>100</b>

#### **4.2.11 Packaging material**

Packaging is an important component in delivering quality eggs to buyers. It embraces both the art and science of preparing products for storage, transport and eventually sale (FAO, 2003). The field survey showed that, 60% of the sampled producers used plastic trays for packaging eggs while 40% used paper board trays (Table 15). Most of the interviewed farmers reported that they preferred plastic trays because eggs were kept safe, and the materials were durable, and washable. However, according to respondents the paperboard trays were cheap and more efficient when transporting eggs, as the rate of breaking or cracking of eggs was low.

**Table 15: Packaging material**

<b>Variables</b>	<b>Frequency</b>	<b>Percent</b>
Paper board trays	24	40
Plastic trays	36	60
<b>Total</b>	<b>60</b>	<b>100</b>



**Figure 5: Showing paper board egg trays**



**Figure 6: Showing plastic egg trays**

#### **4.2.12 Production constraints**

The interviewed producers raised a number of constraints as far as production and marketing is concerned. Table 16 shows the summary of reported problems. It seemed that problems included diseases, poor quality of feeds and high expenses, fake veterinary drugs, and also high costs of day old chicks. Similar findings were also reported by Boki (2000), and Minga *et al.* (2000). The interviewed producers identified Gumboro (Infectious bursal disease), Newcastle (local name Kideri or Mdondo), Fowl typhoid and Marek's as the major diseases that affected their production. The same findings were also reported by Mogesse, 2007; Oleke, 2008; Mfaume, 2008, and Mekonnen, 2007.

#### **4.2.13 Marketing constraints**

Marketing problems were low prices of eggs, unreliable markets and price fluctuations. Price fluctuation has been experienced by most (32%) of the interviewed producers Table 16. In most cases, price fluctuations are influenced by variations in production (supply) and demand of the product (FAO, 2003). Variations in supply are influenced by changes in climate, where in winter season production of eggs increase because of congenial climate and price is relatively low. Conversely, the production remains lower in summer (hot) season and the price is high due to scarcity of eggs (Sabur and Rahman, 2003). Out of 60 sampled producers, only 4 pointed out unreliable markets as a constraint in marketing their produce (eggs).

**Table 16: Production and marketing constraints**

<b>Variables</b>	<b>Frequency</b>	<b>Percent</b>
<b>Production problems</b>		
Diseases	11	18
Poor quality of feeds and expensive	3	5
Fake veterinary drugs and expensive	1	2
High cost of day old chicks	2	3
Disease; poor feed quality ,high cost day old chick	16	27
Disease, poor quality feeds, fake vet drugs expensive	13	22
Diseases, fake and expensive vet drugs	14	23
<b>Total</b>	<b>60</b>	<b>100</b>
<b>Marketing problems</b>		
Price fluctuations	19	32
Unreliable markets	4	7
Low price of eggs	2	4
None	35	57
<b>Total</b>	<b>60</b>	<b>100</b>

#### **4.2.14 Farmer groups/organization**

The field survey shows that, no formal farmer groups/organization existed in the study area. The interviewed producers were found out having inadequate knowledge on the importance or benefits of forming groups. The role and importance of groups or organizations have been overemphasized by different institutions such as Government, NGO's and others. Farmer/producer groups or organizations are the best means of addressing common problems. For instance producers can address issues of credit by starting savings and credit societies to enhance their financial capacity. Furthermore, marketing aspects can be discussed as well as joint orders for inputs to optimize economies of scale. In the same vein, extension services packages as well as training programs could be easily imparted.

### 4.3 Traders Characteristics

#### 4.3.1 Age composition of traders

The results presented in Table 17 below shows that, 29 out 45 interviewed egg traders fell within the age group of 18-30, while 14 were in the age group of 31-50, and few (2) were above 50 years. Age determines individual maturity and ability to make rational decisions. The interviewed egg traders in the study area are within the range of economically productive age (between 18–30 years). The results suggest that they are strong and can actively engage in egg marketing business.

**Table 17: Age composition of traders**

<b>Variables</b>	<b>Frequency</b>	<b>Percent</b>
<b>Egg collectors</b>		
18 years to 30 years	14	93
31 years to 50 years	1	7
<b>Total</b>	<b>15</b>	<b>100</b>
<b>Wholesalers</b>		
18 years to 30 years	5	33
31 years to 50 years	8	54
Above 50 years	2	13
<b>Total</b>	<b>15</b>	<b>100</b>
<b>Retailers</b>		
18 years to 30 years	10	67
31 years to 50 years	5	33
<b>Total</b>	<b>15</b>	<b>100</b>

#### 4.3.2 Sex structure of traders

Table 18 below presents gender structure of sampled traders in the study area. Results show that all egg collectors were male, and majority (93%) of the retailers was also male while only 3% were females. However, the difference was observed for wholesalers in which females dominated the business by 80% and the remaining 20% were males. These findings imply that egg marketing business in the study area is men's job. This phenomenon can be attributed to the fact that they are



financially capable and believed to be brave enough to handle risks and uncertainties of business compared to females. However, these findings are contrary with those of Afolabi (2007), also Ekunwe and Alufohai (2009) which indicated a dominating female population of egg marketers.

**Table 18: Sex structure of traders**

<b>Variables</b>	<b>Frequency</b>	<b>Percent</b>
<b>Egg collectors</b>		
Male	15	100
<b>Wholesalers</b>		
Male	3	20
Female	12	80
<b>Total</b>	<b>15</b>	<b>100</b>
<b>Retailers</b>		
Male	14	93
Female	1	7
<b>Total</b>	<b>15</b>	<b>100</b>

#### **4.3.3 Educational level of traders**

Table 19 shows the summary of educational levels of traders. Results indicate that, most (69%) of the interviewed traders had primary education, while 24% attained secondary education and only 2 out 45 had post secondary or college education. The survey findings imply that most of the traders had received basic education and it could be deduced that egg trading business employs mostly the low educated segment of Tanzanian population. However, it seemed that the basic education attained by the majority of egg traders had influence on business development as it enhanced skills, adoption of innovation and marketing strategies, which in turn influenced business proficiency.

**Table 19: Educational level of sampled traders**

<b>Variables</b>	<b>Frequency</b>	<b>Percent</b>
<b>Egg collectors</b>		
None	1	7
Primary school education	14	93
<b>Total</b>	<b>15</b>	<b>100</b>
<b>Wholesalers</b>		
Primary school education	10	67
Secondary school education	5	33
<b>Total</b>	<b>15</b>	<b>100</b>
<b>Retailers</b>		
Primary school education	7	46
Secondary school education	6	40
Post secondary education	1	7
College/ university education	1	7
<b>Total</b>	<b>15</b>	<b>100</b>

#### 4.3.4 Traders experience in business

Table 20 shows that most (55%) of the egg collectors and (60%) of the retailers had an experience of 2-5 years, while wholesalers were more experienced, as they had more than 5 years in business. These findings imply that egg traders in the study area were experienced in the business. The marketing experience is essential in determining the level of profitability obtained by a marketer. The more years of marketing experience the more knowledge and profits the marketers tend to get, as uses the understanding of the marketing system, market condition, market trends and price (Ali *et al.*, 2008).

**Table 20: Experience in business of traders**

<b>Variables</b>	<b>Frequency</b>	<b>Percent</b>
<b>Egg collectors</b>		
1-2 years	6	40
2-5 years	8	53
More than 5 years	1	7
<b>Total</b>	<b>15</b>	<b>100</b>
<b>Wholesalers</b>		
1-2 years	6	40
2-5 years	3	20
More than 5 years	6	40
<b>Total</b>	<b>15</b>	<b>100</b>
<b>Retailers</b>		
1-2 years	3	20
2-5 years	9	60
More than 5 years	3	20
<b>Total</b>	<b>15</b>	<b>100</b>

#### 4.3.5 Access to credit services

The field survey found out that, collection of loans (credit) was very low. Only 11 out of 45 traders who were interviewed had access to credit, and the rest (34) had no access to credit facilities (Table 21). Those who accessed credit pointed out SACCOs, PRIDE and TUJIJENGE microfinance, also Akiba Commercial Bank as the main sources for the credits. During the interviews, respondents had views and reasons for not accessing credit from financial institutions. Among the indicated reasons were difficult conditions laid for acquiring loans, and little awareness on the existence of credit facilities particularly in the case of egg collectors. Other reasons included high interest rate and fear of the potential loanees. However, from the table below it shows that wholesalers had attempted to secure loans despite the bureaucratic procedures. Such an attempt could be due to nature of their business as they purchase large quantities of eggs and hence a need for strong financial resources. Nevertheless, the findings imply that policies regarding accessibility of credits are not favorable or conducive to majority of traders. This is because of

bureaucratic procedures, coupled with collateral requirements, which altogether discourage the traders from applying the loans.

**Table 21: Access to credit services for traders**

<b>Variables</b>	<b>Frequency</b>	<b>Percent</b>
<b>Egg collectors</b>		
Yes	2	13
No	13	87
<b>Total</b>	<b>15</b>	<b>100</b>
<b>Wholesalers</b>		
Yes	8	53
No	7	47
<b>Total</b>	<b>15</b>	<b>100</b>
<b>Retailers</b>		
Yes	1	7
No	14	93
<b>Total</b>	<b>15</b>	<b>100</b>

#### **4.3.6 Access to market information**

Business decisions are based on dynamic information such as consumer needs and market trends (price, supply and demand trends). Changing needs of consumer and markets trend influence buying (Assefa, 2009). In addition, access to timely information on prices and quantities plays a crucial role in reducing the risk of losing money on market transaction (Shepherd, 2001). The field survey shows that all the sampled traders had access to price information. Market information improves bargaining between producers and traders, hence assisting in setting a fair price in the contractual agreement between producers and traders and consequently avoiding disputes (FAO, 2003). On the other hand, the interviewed traders revealed that fellow traders were the main source of market information regarding egg business.

#### 4.3.7 Price determination

The study results show that, majority (87%) of the interviewed egg collectors and retailers set price on the basis of demand and supply trends while wholesalers considered cost they had incurred (Table 22). However, the interviewed collectors stressed that they were obliged to charge prices basing on present market forces (supply and demand) regardless of the costs incurred. They noted that they would not sell their produce as they feared loss. Similarly, retailers were also forced to obey to market price trends so that their products could be sold fast or else the eggs could rot.

**Table 22: Price determination for sampled traders**

<b>Variables</b>	<b>Frequency</b>	<b>Percent</b>
<b>Egg collectors</b>		
Cost incurred	2	13
Supply and demand	13	87
<b>Total</b>	<b>15</b>	<b>100</b>
<b>Wholesalers</b>		
Cost incurred	8	53
Supply and demand	7	47
<b>Total</b>	<b>15</b>	<b>100</b>
<b>Retailers</b>		
Cost incurred	2	13
Supply and demand	13	87
<b>Total</b>	<b>15</b>	<b>100</b>

#### 4.3.8 Quality attributes considered before buying eggs

Consumers perceptions of quality vary depending on the intended use of the eggs and own preferences. Therefore understanding the type of eggs that is most demanded by consumers is relevant to ensure acceptability in the market. Table 23 indicates that egg collectors (47%) and wholesalers (40%) considered size of eggs

as the most important aspect when buying eggs. However, this is contrary to retailers (60%) who consider cleanliness of egg shell as the most essential quality factor when purchasing eggs. The results further showed that colour of egg shell were also an important aspect. Although shell colour is not an indication of quality, consumers in some markets may prefer white or brown eggs. For example, in China, and Japan majority prefer brown eggs, while white eggs are more marketable among Americans and in England brown shells are most preferred.

**Table 23: Quality considered before buying eggs**

<b>Variables</b>	<b>Frequency</b>	<b>Percent</b>
<b>Egg collectors</b>		
Size of eggs (large, small)	7	47
Cleanliness of egg shell	3	20
Freshness of eggs	2	13
Colour of egg shell (white, brown)	3	20
<b>Total</b>	<b>15</b>	<b>100</b>
<b>Wholesalers</b>		
Size of eggs (large, small)	6	40
Uncracked egg shell	5	33
Cleanliness of egg shell	4	27
<b>Total</b>	<b>15</b>	<b>100</b>
<b>Retailers</b>		
Size of eggs (large, small)	2	13
Uncracked egg shell	4	27
Cleanliness of egg shell	9	60
<b>Total</b>	<b>15</b>	<b>100</b>

#### **4.3.9 Marketing problems**

The interviewed traders raised a number of problems regarding egg marketing business. Table 24 shows the summary of problems that were identified. Road accident risk was reported to be a critical problem among egg collectors. The common type of transport used is a bicycle which is quite unsafe to the eggs. It is even more risky as the roads are also typical of reckless driving. Moreover, the

product loss (breakage/cracking of eggs) was reported by 80% of retailers as a major problem regarding the business. Similarly, 47% of wholesalers identified the same as a problem in the egg marketing business. This seems to be logical as it is known that the handling and storage procedures for eggs are very delicate tasks.

The other problem which was identified is high competition. This problem was reported by (40%) of all egg wholesalers. In view of this, they admitted that egg trading business was open to any body provided that she/he had enough capital to undertake the business. In such circumstances, competition is inevitable. It was also reported that the competition was even higher as there were imports of eggs from Kenya which were significantly cheap.

**Table 24: Marketing problems**

<b>Variables</b>	<b>Frequency</b>	<b>Percent</b>
<b>Egg collectors</b>		
Price fluctuations	2	13
Road accident risks	10	67
Product losses (breakage/cracking of eggs)	3	20
<b>Wholesalers</b>		
Price fluctuations	2	13
High competition	6	40
Product losses (breakage/cracking of eggs)	7	47
<b>Retailers</b>		
Product losses (breakage/cracking of eggs)	12	80
None	3	20

In addition to the aforementioned problems, price fluctuation was mentioned as another challenge facing both egg collectors and wholesalers. It is worth noting that price fluctuations are mainly influenced by supply and demand situation. Supply situation is influenced by changes with climate. For instance, in winter season production of eggs increase because of congenial climate and prices are relatively low. Conversely, the production remains lower in summer (hot) season and the

prices are high due to scarcity of eggs. It was reported that during fasting periods for both Christians and Muslims, the demand is usually low and consequently prices become low (Table 25). Similar findings on price fluctuations in eggs marketing was also reported in Ethiopia by Assegie (2009) and Awolzeberga (2010), also in Bangladesh by Sabur and Rahman (2003).

#### **4.3.10 Trader's groups/organization**

It was found out during field survey that no formal groups/organizations existed among egg traders in the study area. Such a situation places a disadvantaged position on their welfare as far as the business is concerned. It was also difficult for traders to obtain information on to negotiate, also limited information on safety, standards, and quality of produce that are needed in the market. Furthermore, trader groups or associations/organizations are relevant in business effectiveness and efficiency as aid in bargaining power against unfriendly situations which impinge on their business performance. When there are organizations, the accessibility to credit services and market information on price, supply and demand trends is improved.

### **4.4 Consumption Characterists of Consumers**

#### **4.4.1 Sources of daily food and eggs requirements**

On this aspect, it was found out that, consumers had various places to purchase food items. According to the interviewed consumers, majority (87%) of them indicated market places as where they could obtain most of their food requirements while 13 % obtained their daily food item at retail shops (Table 25). In this regard, market



was found out to be a convenient place as most of the requirements could be obtained there. Furthermore, the table presents summary of egg sources. About 40% of consumers purchased eggs from retail shops, while 27% bought eggs directly from farmers. On the other hand, about 20% and 13% of consumers bought eggs from wholesale markets and middlemen (collectors) respectively. The findings imply that retail shops are closer and convenient to most egg consumers.

**Table 25: Sources of daily food and eggs requirements**

<b>Sources</b>	<b>Frequency</b>	<b>Percent</b>
<b>Daily food requirements</b>		
Market	13	87
Retail shops	2	13
<b>Total</b>	<b>15</b>	<b>100</b>
<b>Egg sources</b>		
Middlemen	3	20
Farmers	4	27
Retail shops	6	40
Wholesale shops	2	13
<b>Total</b>	<b>15</b>	<b>100</b>

#### **4.4.2 Quality attributes considered in buying eggs**

Egg Quality attributes such as size, colour of egg shell, cleanliness of egg shell and whether the shells were cracked or uncracked egg, indicated differences among consumers. The distribution of respondents according to their quality criteria is presented in Table 26. When asked to explain why big sized eggs were considered to be of high quality, most of the consumers indicated that they preferred big eggs just because of the size. Another criterion for egg quality was status of the egg shell. On this, customers did not seem to prefer cracked eggs as they could not be stored longer and were more likely to get contaminated.

The cleanliness of egg shells was also considered by respondents. Dirty eggs were found out to be not attractive as consumers considered them as unsafe for consumption. Moreover, few (13%) of respondents considered colour of egg shell as an indication of quality. On this matter, brown colour was mostly preferred as it was

believed that brown egg shells had yellowish egg yolk which was not found in white eggs. However, it has been scientifically proved that colour of egg shell has nothing to do with egg quality, flavors, nutritional value. The colour of egg shell is entirely dependent upon the breed of the laying chicken and the intensity of egg yolk colour (pale or dark yellow) which is influenced with type of diet consumed by the laying chicken (FAO, 2003).

**Table 26: Qualities attributes considered in buying eggs**

<b>Variables</b>	<b>Frequency</b>	<b>Percent</b>
<b>Qualities</b>		
Size of eggs	6	40
Uncracked egg shell	4	27
Cleanliness of egg shell	3	20
Colour of egg shell (brown, white)	2	13
<b>Total</b>	<b>15</b>	<b>100</b>

#### **4.4.3 Problems faced when purchasing and consuming eggs**

Table 27 presents a summary of problems faced by consumers when buying and consuming eggs. Dirty and cracked eggs were identified as problems when purchasing eggs, while during consumption, the main problem was with rotten eggs. A total number of 15 consumers were interviewed. Out of these, 27% pointed out cracked eggs as a problem when purchasing eggs and 20% indicated dirty eggs as their concern in buying eggs. Most (53%) of the interviewed consumers reported

that it was very difficult to detect spoiled/rotten eggs until when preparations for consumption were being done. The observed problems posed a challenge to both producers and marketing actors hence a need for special attention in production, management, and storage procedures for the eggs. Attention should also be paid in packaging material, and transport facilities to ensure quality of the eggs.

**Table 27: Problems faced in purchasing and consuming eggs**

<b>Variables</b>	<b>Frequency</b>	<b>Percent</b>
Spoiled eggs	8	53
Dirty eggs	3	20
Cracked egg shell	4	27
<b>Total</b>	<b>15</b>	<b>100</b>

#### **4.5 Analysis of Distribution Channels and Marketing Agents**

##### **4.5.1 Marketing agents' analysis**

The study of commercial egg value chain aimed at investigating participants in the value addition, their tasks in providing the product in time, and form and place utility. Thus value chain needs an organized and coordinated marketing system to enable the products reach the intended actors in a quality manner. The following participants were identified and analysed in the study area;

##### **(i) Producers**

Producers keep layers and they are the sole source of eggs which are supplied in the market chain. In addition they are consumers as well. They sell eggs directly to consumers, egg collectors, wholesalers and retailers. The modes of payment are cash and in some cases, sometimes sell on credit basis with mutual agreement of paying each other sometime. However, some of the producers face risks when they

sell eggs on credit as some collectors are not trustful in paying for their debts as agreed. Tracing them becomes difficult since they have no permanent business locations. This is not the case with wholesalers and retailers that have permanent business location and can be easily traced.



**Figure 7: The producer in the layers house**

## **(ii) Egg collectors**

Egg collectors are itinerant as they move on a daily basis to where the egg producers are found. The major means of transport is bicycles. They sell eggs to different places such as directly to consumers, hotels, restaurants, kiosks and retail shops. The quantity of trays of eggs supplied to different markets by each egg

collector ranges from 20 to 50 trays daily. The payment mode is mainly cash. However, credit is granted with agreement to be paid within a specific period of time. Like the egg producers, egg collectors face the risk of later or default payment from the consumers.



**Figure 8: The egg collector at producer's residence buying eggs.**

### **(iii) Wholesalers**

Wholesalers purchase consignments of trays of eggs from producers and other wholesale traders, and in turn, sell to retailers and other consumers. The buying and selling of eggs is on cash as well as credit basis. The wholesalers are mainly located in or around main markets of Kisumu, Kariakoo, Buguruni, and Ilala. The quantity of trays of eggs supplied to the markets by each wholesaler ranges from 100 to 900 trays weekly.





**Figure 9: A wholesaler in Kisutu market**

**(iv) Retailers**

A retailer buys eggs from farmers, egg collectors and wholesalers and sells the same in relatively smaller quantities to consumers. The buying of eggs is mainly on cash. However, depending on their agreement, there are situations where the sale is on credit terms. The general food shops are the ones which usually perform retailing function. The quantity of trays of eggs supplied to the consumers by each retailer ranges from 5 to 35 trays per weekly.



**Figure 10: A retail shop in Kariakoo**

**(v) Consumers/processors**

It is important to note that consumers are also processors. They buy eggs from retail shops, wholesale markets, egg collectors and also directly from producers. Since eggs are sold as raw, processing has to be done before consumption. Eggs are processed and eaten in different forms, such as boiled eggs, fried eggs or mixed with chips. Moreover, eggs are also used as ingredients in baking breads, cakes, and *chapati*.

**4.5.2 Marketing channels analysis**

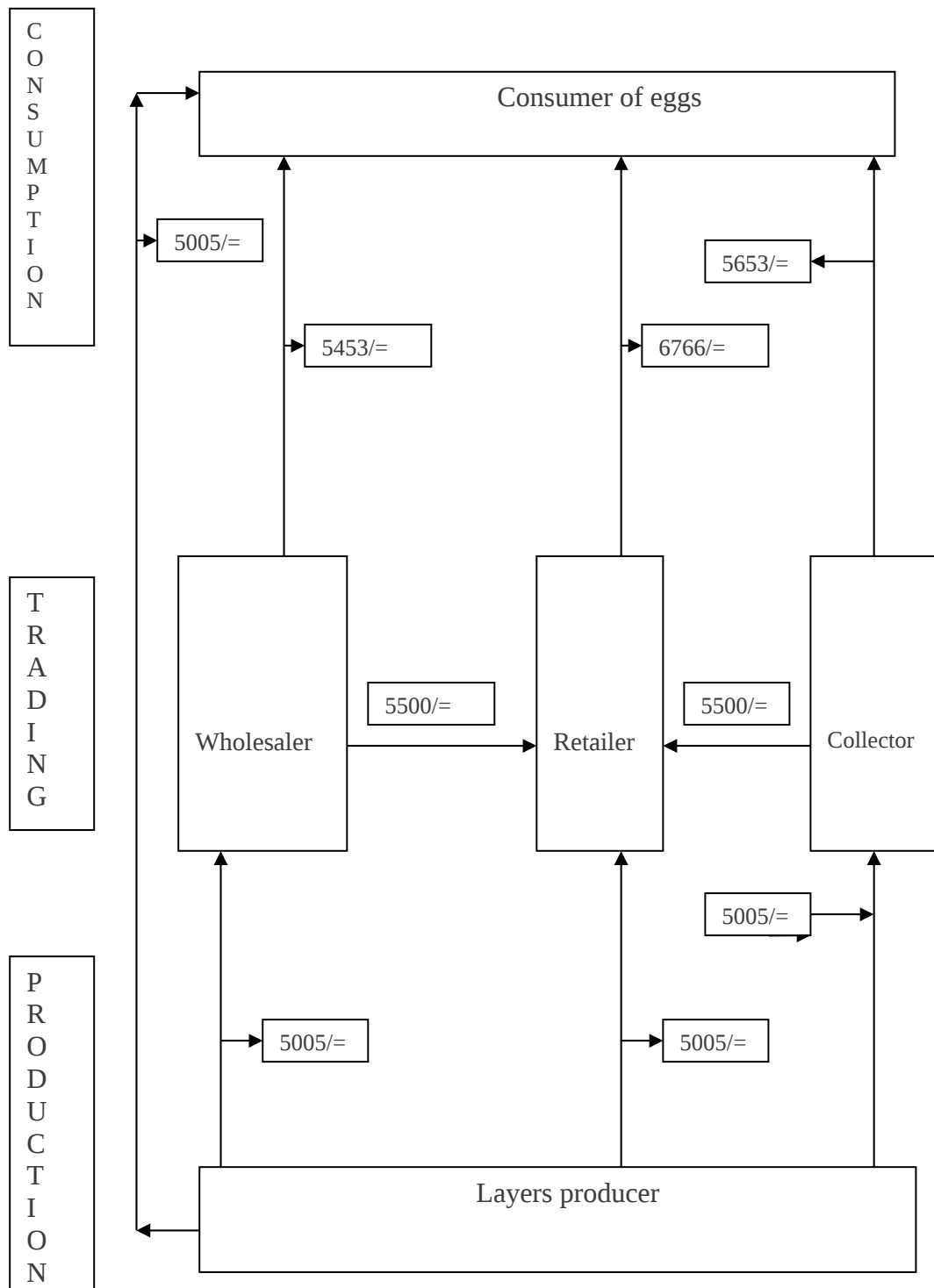
The analysis of marketing channel is intended to provide a systematic knowledge of the flow of the goods and services from their origin (production) to the final destination (consumption). The study survey identified six major marketing

channels (Fig. 11). In which the egg producer is the first link in the marketing channel.

Channel I	Producer	consumer		
Channel II	Producer	Wholesaler	consumer	
Channel III	Producer	Retailer	Consumer	
Channel IV	Producer	Egg collectors	Consumer	
Channel V	Producer	Egg collector	Retailer	Consumer
Channel VI	Producer	Wholesaler	Retailer	Consumer

This could be explained that, Channel I, which involves direct sale to consumers, is the shortest while channel V and VI in which eggs pass through several intermediaries are the longest. It was revealed out that the longer the channel the more the price is going to be charged to the consumer. This is logical because of increased marketing costs of delivering the product to the final user. Conversely, the shorter the marketing chain, the more likely is the retail price going to be affordable.





**Figure 11: Commercial egg marketing channels in Ilala Municipal Council**  
**(Price in Tzs per tray)**

#### 4.6 Profit Margin Analysis

Profit margin analysis was used to determine the profit accrued by different chain actors in the commercial egg enterprise.

##### 4.6.1 Profit margins at producer level

At producer level, the average profit was found to be Tshs 9 564 085 per person per annum while Tshs 2296, Tshs 0.85 were returns per tray of eggs and return per shilling invested respectively (Table 28). The main reason for relative high profit margin as compared to other marketing levels of the chain is attributable to the fact that the quantity produced and sold is large enough to have the production costs spread over the large volume of eggs sold. In so doing the unit cost of production is reduced. Also, since most of the farmers sell eggs directly to egg collectors who visit them at their farm places, there are no transport costs at all.

**Table 28: Annual profit margin at producer level (N=60)**

Items	Value
<b>Variable costs</b>	
Feed costs (Tshs)	582 384 000
Day old chicks (Tshs)	59 201 000
Veterinary cost (Tshs)	2 570 800
Hired labour (Tshs)	8 700 000
<b>Total variable cost (Tshs)</b>	652 855 800
<b>Fixed variable costs</b>	
Family labour(Tshs/year)	19 152 240
Tools and equipments (Tshs- once purchased in a year)	5 316 800
<b>Total fixed costs</b>	24 469 040
<b>Total cost (TC) = (TVC+TFC)</b>	677 324 840
Quantity of egg sold (trays)	249 984
Average selling price (Tshs/tray)	5 005
<b>Total revenue (TR)=(Quantity of egg trays sold* Av Selling price of egg tray) (Tshs)</b>	1 251 169 920
<b>Profit margin (Tshs) (TR-TC)</b>	573 845 080
<b>Average Profit margin (Tshs) (Profit margin/Number of producers)</b>	9 564 085
<b>Return per tray of eggs (Profit margin/Quantity of trays sold) (Tshs)</b>	2 296
<b>Return per shilling invested (Profit margin/Total cost) Tshs</b>	0.85

#### **4.6.2 Profit margins for Traders**

##### **(i) Egg collectors**

Egg collectors received an average profit of Tshs 5 964 693 per annum. Returns per tray of eggs were Tshs 540 and Tshs 0.1 returns per shilling invested (Table 29). The recorded profit could be attributed to relatively large quantities of eggs sold which provided for transport costs to be spread over the large quantities of eggs sold.

##### **(ii) Wholesalers**

The average profit margin for wholesalers was found out to be Tshs 7 231 040 per person per year. Returns per tray of eggs were Tshs 375 and Tshs 0.7 return per shilling invested (Table 29). This implies that, the costs incurred at the wholesale level are low due to the distribution of large quantities of eggs handled compared to other traders in the chain. It also means that wholesalers enjoyed economies of scale by selling large volumes of eggs at minimum costs and thus increasing the profit margin.

##### **(iii) Retailers**

At the retail level, the average profit was found out to be Tshs 308 000 per year. Returns per tray of eggs were Tshs 28 and Tshs 0.1 as return per shilling invested (Table 29). This means that, retailers handled small volumes of eggs due to limited capital, hence diseconomies of scale with a reduced profit margin.

**Table 29: Annual profit margins for traders**

<b>Items</b>	<b>Wholesaler (N=15)</b>	<b>Egg collectors (N=15)</b>	<b>Retailers (N=15)</b>
Quantity of eggs purchased (trays)	288 960	163 552	12 912
Average purchasing price (Tshs/tray)	5 020	5 080	5 260
Total purchasing costs (Tshs)	1 456 800 000	828 512 000	68 568 000
Transport costs (Tshs)	-	5 913 600	-
Storage/rent costs (Tshs)	8 174 400	-	10 740 000
Packaging costs (Tshs)	-	-	-
Total costs Tshs (TC)	1 464 974 400	834 425 600	79 308 000
Quantity of eggs sold ((trays)	288 960	163 552	12 912
Average selling price (Tshs)	5 453	5 653	6 766
Total revenue- Tshs (TR)	1 573 440 000	923 896 000	83 928 000
Profit margin- Tshs (TR – TC)	108 465 600	89 470 400	4 620 000
Average profit margin - Tshs (Profit margin/Number of traders)	7 231 040	5 964 693	308 000
Return per tray of eggs Tshs (Profit margin/Quantity egg trays sold)	375	540	28
Return per shilling invested Tshs (Profit margin/Total cost)	0.7	0.1	0.1

#### 4.7 Regression Analysis

A regression analysis was employed to determine the factors that add value to commercial egg value chain in the study area for producers. The dependent variable was profit margin while independent variables were age, sex, level of education, household size, experience, access to credit, access to extension services and packaging costs. The regression variables were estimated by a multiple linear regression models (Table 30).

**Table 30: Regression estimates of variables against profit margin**

<b>Variables</b>	<b>Coefficients</b>	<b>T-value</b>
Age	-0.100 (2 050 306)	-0.655
Sex	0.099 (1 963 793)	0.830
Education	0.093 (1 178 493)	0.775
Household size	0.099 (436 413)	0.748
Experience	0.145 (1 906 125)	0.991
Access credit	-0.071 (2 097 474)	-0.584
Access extension	-0.017 (2 542 826)	-0.131
Packaging cost	0.425** (1722)	3.016
R <sup>2</sup>	0.326	

Significant at \*\* P<0.01; figures in parentheses denote standard errors

Table 30 indicates that R<sup>2</sup> (coefficient of determination) was 0.326, which means that 32.6% of the variation of producers profit margin generated was due to the independent variables included in the regression model and the remaining 67.4% were explained by other factors not studied and possible sampling and measurement errors. It should be noted that by having a relatively lower R<sup>2</sup> does not mean that the specification of the model was wrong (Swai, 2008). Furthermore, the results indicated that packaging cost is positive and significant at 1% indicative of the determinant/factor that influence profit margin at producer (farm) level. The implication is that the higher the packaging costs incurred by the producer, the higher the prices paid by the consumer or trader, hence more profit earned by the producer.

#### **4.8 Marketing Margin Analysis**

The assessment of marketing efficiency for commercial egg value chain was done by determining the margins at different levels of chain. Market margins were calculated by finding the price

variations at different levels. The findings on commercial egg marketing margin are summarized in Table 31. From the summary presented in table 31, it was revealed that the price was the lowest at producer level and the highest at retail level. This complies with cost based pricing method in which prices are determined by the costs incurred in the production and marketing processes. At producer level, it was anticipated that only production costs would be incurred whereas at wholesale level, storage/rent costs would increase prices. On the other hand costs of transporting eggs from the farm level to different market places increased prices at the egg collector level. At retail level the increased price could be explained by storage/rent costs incurred.

Moreover, marketing margin was found out to be relatively high (Tshs 1506 per tray of eggs) at retail level compared to wholesaler (Tshs 433 per tray of eggs) and egg collectors (Tshs 573 per tray of eggs). Retail marketing margin was 3 times higher than the egg collector and almost 4 times higher than the wholesalers. This suggests that, high marketing margin is associated with costs incurred from high storage/rent costs; wastage resulted from deterioration of the product as well as other product losses including breakage or cracking due to delayed sales and or sales of a fixed quantity of eggs compared to other traders. These findings are similar with those of Sabur and Rahman (2003), which

indicated high marketing margin at retail level among egg traders in Bangladesh.

**Table 31: Marketing margin along the chain**

Chain actors	Average selling price (Tshs/tray)	Average buying price (Tshs / tray)	MM	MM%	Producer share %
Producer	5005				
Wholesaler	5453	5020	433	8	92
Egg collector	5653	5080	573	10	90
Retailer	6766	5260	1506	22	88

The study further assessed the correlation between marketing margin, buying and selling price along trader's chain. The correlation analysis was aimed to determine extent to which egg market participant pass on price changes to subsequent marketing channel level. Table 32 shows that marketing margins and selling price were positive and significantly correlated. A positive correlation implies that as selling price increases the marketing margins also increases. Likewise, at wholesale level there was a negative but significant correlation between buying price and marketing margin.

**Table 32: Correlation between marketing margin, buying and selling prices**

Variables	Correlation Coefficient
<b>Egg collectors</b>	
Marketing margins and buying price	-0.156 (0.290)
Marketing margins and selling price	0.642** (0.005)
<b>Wholesaler</b>	
Marketing margins and buying price	-0.783** (0.000)
Marketing margins and selling price	0.560* (0.015)
<b>Retailer</b>	
Marketing margins and buying price	- 0.356 (0.096)
Marketing margins and selling price	0.795** (0.000)



\*\* Correlation is significant at the 0.01 level (1- tailed); \* Correlation is significant at the 0.05 level (1- tailed); figures in parentheses denote sig (1- tailed)

## **CHAPTER FIVE**

### **CONCLUSIONS AND RECOMMENDATIONS**

#### **5.1 Conclusions**

##### **5.1.1 Marketing/distribution channels for commercial eggs**

The study identified 6 major marketing channels in which eggs are distributed from producer to the final end user (consumer). Whereas short channel is the one in which eggs are distributed from the producer directly to the consumer, long channels entail eggs passing through intermediaries, such as wholesalers, egg collectors, and retailers to the last consumer. Both short and long channels influence retail prices. The shorter the channel the more likely is the retail /consumer price going to be affordable. Conversely, the longer the channel the more the price the consumer has to pay, due to increased marketing costs of delivering the product to the final user.

##### **5.1.2 Profit margins accrued by different actors**

In the attempt to determine profit margins accrued by different actors, it was hypothesized that traders obtain higher profit margin compared to producers. The producers were found to accrue average annual profit margin of Tshs 9 564 085 while wholesalers obtained average annual profit of Tshs 7 231 040. On

the other hand egg collectors received average annual profit of Tshs 5 964 693 while retailers accrued the average annual profit of Tshs 308 000. The higher profit margin for producers could be associated with quantity produced and sold. The null hypothesis stated that traders obtain more profit compared to producers in the study area. Based on the findings, the null hypothesis was rejected since traders received relatively small margin compared to producers

#### **5.1.3 Factors that influence profit margins at producers level**

The factors that determine profit margins at producers' level along the value chain were age, level of education, sex, experience, access to extension services, access to credit services and packaging costs. The study found out that packaging cost to be positive and significantly influencing profit margin. This implied that packaging costs have influence on the selling price as consumers or traders have to pay more when buying eggs to cover costs of packaging, in due that more profit to producers. The null hypothesis for this case stated that access to credit services is the major factor that influence profit margin for producers in the study area. Based on the findings, of this study, the null hypothesis was rejected.

#### **5.1.4 Marketing efficiency for commercial egg**

The assessment of market efficiency was done by determining the market margins at different levels of the markets. The margins were calculated by finding the price variations at different levels and then compared with the retail price (consumer price). The findings indicated that marketing margin for wholesalers was Tshs 433, egg collectors Tshs 573, and retailers was Tshs 1506 per tray of eggs. Retailers had high marketing margin compared to other traders in the chain. Basically, high marketing margin reflects low income/profit as explained by high marketing costs. On the other hand producers share was relatively high at all level of the market that is 92%, 90% and 88% at wholesale, egg collectors and retail levels respectively. The relatively high producer share of the marketing margin implies that producers earn more profit and that was true as proved by the results obtained in profit margin analysis.

Correlation analysis was carried out between marketing margins, buying price and selling price. It aimed to assess the extent to which market participants pass on price changes to subsequent market levels. The result indicated that there were significant correlation between marketing margin and selling price at all level of markets (wholesalers, egg collectors and retailers). Such significant correlations imply that when selling prices increase the marketing margin also increases. It also means that, there was a degree to which the prices provide an incentive to producers and

consumers that are consistent with resources availabilities and demand. Therefore, it can be concluded that commercial egg marketing system is efficient due to positive and significant correlation between marketing margins and selling prices. In view of this, the null hypothesis that commercial egg marketing system in the study area is efficient was accepted.

## **5.2 Recommendations**

In view of the major findings of the study and the above conclusions, the following recommendations are made in order to enhance performance of egg industry in Tanzania.

### **5.2.1 Support formation of farmers and traders groups/associations**

It is recommended that the Government, NGOs and other institutions should initiate and support the formation of groups or associations at all levels of the chain to enhance accessibility to credit services, extension services, marketing information as well as increasing collective bargaining power, and improving economies of scale in the purchase of inputs. The associations/groups would as well improve negotiation power of farmers and traders in setting prices for their produce.

### **5.2.2 Strengthening extension services**

On the basis of these findings, it is also recommended to strengthen extension services for disseminating skills, knowledge and innovations on improved poultry production, management (proper and quality feeding, housing, hygiene), disease control, proper packaging, labeling, and market entrepreneurship. When these

initiatives facilitate farmers/producers to produce quality eggs thus penetrate niche markets.

### **5.2.3 Promote investment in grandparent stock farms and hatcheries**

It is also recommended that the government should encourage and support more investments on quality grandparent stock farms and hatcheries in the country. Large numbers of grandparent stock farms and hatcheries increases competition, hence reducing prices of day old chicks.

#### **5.2.4 Enforcement of laws and regulations**

In order to improve quality feeds and day old stocks, the study recommends for strict enforcement of laws and regulations governing animal feed formulation, hatchery and animal diseases, so that feed mill industries, and hatcheries adhere to quality feed formulation and vaccination of chicks to supplying the same to farmers.

#### **5.3 Suggestion for future research**

Further research on the similar study is required to other areas of Tanzania for building a data base and comparison. Also need to conduct a research on demand of commercial eggs in Tanzania.

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## Appendix 1: Questionnaire

TITLE: COMMERCIAL EGG VALUE CHAIN ANALYSIS IN TANZANIA: A  
CASE STUDY OF ILALA MUNICIPAL COUNCIL

### FARMER'S QUESTIONNAIRE

#### SECTION A: BACKGROUND INFORMATION

- i. Questionnaire No .....
- ii. Date of interview  
.....
- iii. Interview's  
name.....
- iv. Name of  
respondent.....
- v. Ward.....  
....
- vi. District.....  
.....
- vii. Region.....  
.....

#### SECTION B: RESPONDENT CHARACTERISTICS

1. Age of respondents 1) 18 yrs to 30 yrs [ ] 2) 31 yrs to 50 yrs [ ] 3) above 50 yrs
2. Sex of the respondent [ ] 1= Male 2= Female
3. Educational levels  
1) None [ ] 2) Primary school education [ ] 3) Secondary school education [ ]  
4) Post secondary education [ ] 5) College/ university education [ ]
4. Household size [ ] number of people
5. Main occupation of the respondent [ ] 1= farming 2= non-farming
6. What are your non-farm income generating activities?  
1) Employment [ ] 2) Handcraft [ ] 3) Petty trade [ ] 4) Big business [ ]  
5) Others [ ] specify

#### SECTION C: PRODUCTION INFORMATION

8. How many layers do you keep?  
1) Less than 100 [ ] 2) 100 to 500 [ ] 3) 500 to 1000 [ ] 4) 1000 and above [ ]

9. For how long have you been keeping layers?

1) 1-2 years [    ] 2) 2-5 years [    ] 3) More than 5 years [    ]

10. Where did you buy most of your inputs? (feeds, feeders, drinkers, vet drugs)

1) Nearby shop [    ] 2) Marketplace [    ] 3) Others [    ]

11. How far is the buying place from your homestead? .....Km

12. Variable inputs cost for each laying chicken (please fill in the table provided)

Input	Amount	Cost	Total Cost
Day old chick(number)			
Feeds (kg)			
Veterinary drugs(ml)			
Vaccines(ml)			
Others (specify)			

13. Labour cost in layers production

Activity	Family labour (Man days)	Hired labour (Man days)	Costs
Cleaning			
Feeding			
Watering			
Egg collection			
Others (specify)			

Man-days = No. of laborers \* hrs/day \* No. days worked

14. Fixed inputs costs

Input	Amount	Cost	Total Cost
feeders			
drinkers			
Others (specify)			

15. Do you access extension services? 1) Yes [    ] 2) No [    ]

16. If yes how often; 1) very frequently [    ] 2) frequently [    ] 3) less frequently [    ]

17. If no why.....

18. What specific aspects are covered by extensionist? Explain

.....  
 .....

.....  
 .....

19. Do you find extension services adequate (yes/no) and why

.....  
 .....  
 .....

20. Do you access credit; 1) Yes [ ] 2) No [ ]

21. If yes name the institution from which you access the credit

- 1) Commercial banks [ ] 2) Saccoss [ ] 3) Microfinance [ ]  
 4) Others [ ] specify

22. If no why.....

23. What problems do you face in layers production?

.....  
 .....  
 .....

#### SECTION D: MARKETING INFORMATION

24. Where do you sell your product?

- 1) Direct to consumer [ ] 2) middlemen [ ] 3) traders [ ] 4) farmer's  
 Cooperatives [ ] 5) others [ ] specify

25. Why did you sell to this particular buyer?

- 1) Good price [ ] 2) Only middlemen available [ ] 3) Marketing convenience [ ]

26 Please provide information as indicated in the following table

product	Quantity Bags/kg/no	Amount consumed Bags/kg/no	Amount sold Bags/kg/no	price	revenue
eggs					
Culled hen					
manure					

27. Did you know prices before selling most of your product? 1) Yes [ ] 2) No [ ]

28. How do you collect information on market prices?

- 1) Direct visit to market [ ] 2) Crosscheck with middlemen [ ] 3) from  
 neighbours  
 and friends [ ] 4) Extension services [ ] 5) radio [ ] 6) others [ ] specify

29. What type of market information do you get?

- 1) Price of the product [ ] 2) price of input [ ] 3) quality and standard of product [ ]  
 4) Others [ ] specify

30. How far is the selling point from you homestead? .....km

31. How did you transport your product to the selling point?

1) Bicycle [ ] 2) public transport [ ] 3) private transport [ ] 4) others [ ]  
specify

32. Do you do sorting and grading for your product? 1) Yes [ ] 2) No [ ]

33. If yes what are criteria used in sorting and grading your product

.....  
.....  
.....

34. If no why; explain.....

.....

35. What are the quality requirements for good eggs?

.....  
.....  
.....

36. What do you do to assure that the qualities of eggs are maintained?

.....  
.....  
.....

37. What kind of material do you use to package your product (eggs)?

1) Paperboard fillers [ ] 2) Plastic fillers [ ] 3) Basket [ ] 4) Others [ ]

38. Why choose that kind of material?

1) Only available [ ] 2) cheap in price [ ] 3) attractiveness [ ] 4) safety for  
the Product [ ] 5) others ..... [ ] specify

39. What is the average cost for the packaging material.....Tshs

## SECTION E: OTHER INFORMATION

40. Do you have any farmer group/organization? 1) Yes [ ] 2) No [ ]

41. If yes are you a member? 1) Yes [ ] 2) No [ ]

42. From question 41 if no why? Explain .....

.....  
.....

43. What are the benefits of joining farmer group/organization?



.....  
 .....  
 .....

44. What problem do you face in marketing your product?

.....  
 .....  
 .....

45. What do you suggest to reduce the problems encountered in production and marketing of your product.

.....  
 .....  
 .....

46. What is your future prospects regarding production and marketing eggs?

.....  
 .....  
 .....

**THANK YOU VERY MUCH FOR YOUR COOPERATION**

## TRADERS QUESTIONNAIRE

### SECTION A: BACKGROUND INFORMATION

- i. Questionnaire No  
.....
- ii. Date of interview  
.....
- iii. Interview's  
name.....
- iv. Name of  
respondent.....
- v. Ward.....  
....
- vi. District.....  
.....
- vii. Region.....  
.....

### SECTION B: RESPONDENT CHARACTERISTICS

- 1 Age of respondents [      ] Years
- 2 Sex of the respondent [      ] 1= Male 2= Female
3. Educational levels
  - 1) None [    ] 2) Primary school education [    ] 3) Secondary school education [    ]
  - 4) Post secondary education [      ] 5) College/ university education [      ]
4. What type of trade are you doing?
  - 1) Wholesale [    ] 2) collector [    ] 3) retailer [    ] 4) others [    ] specify
5. Years in business 1) 1-2 years [    ] 2) 2-5 years [    ] 3) More than 5 years [    ]
6. Business nature 1) fulltime [    ] 2) part-time [    ]
7. Where do you get eggs for business?
  - 1) Farmer [    ] 2) middlemen [    ] 3) other trade [    ] 4) Others [    ] specify
8. What is the means of transport?
  - 1) Bicycle [    ] 2) public transport [    ] 3) private transport [    ] 4) others [    ] specify
9. What is the average distance to these buying places..... Km

10. Who buys eggs from you?

1) Consumers [     ] 2) retailers [     ] 3) wholesale [     ] 4) others [     ] specify

11. Please provide information as indicated in the following table

Item	Quantity Bought tray	Unity buying price Tshs/tray	Purchase cost	Quantity sold trays	Unity selling price Tsh/tray	revenue
eggs						

12. What is the average transport cost for a tray of eggs \_\_\_\_\_ Tsh/Km?

13. Do you own a business license? 1) Yes [ ] 2) No [ ]

14. How do you normal get price information?

- 1) Direct visit to market [ ] 2) fellow traders [ ] 3) newspapers [ ] 4) radio [ ]  
5) Others [ ] specify

15. What are criteria used in setting price?

- 1) Cost incurred [ ] 2) supply and demand situation [ ] 3) others [ ] specify

16. Do you normally store traded eggs? [ ] 1= Yes 2= No

17. If yes where did you store it?

- 1) Market place [ ] 2) In own house/store [ ] 3) others [ ] specify

18. What is the average storage cost of the product .....Tsh

19. Have you ever had access to formal credit to support your business?

- 1) Yes [ ] 2) No [ ]

20 If yes name the institution from which you access the credit

- 1) Commercial banks [ ] 2) Saccoss [ ] 3) Microfinance [ ] 4) others [ ]

21. If no why; explain.....  
.....

22. What do you consider before buying eggs?

.....  
.....  
.....

24. If yes are you a member? 1) Yes [ ] 2) No [ ]

25. What are the benefits of joining trader's group/organization?

.....  
.....  
.....

26. What problem do you face in your business?

.....  
.....  
.....

27. What do you suggest to reduce the problems encountered in your business?

.....  
.....  
.....  
.....

28. What is your future prospects regarding your business??

.....  
.....

**THANK YOU VERY MUCH FOR YOUR COOPERATION**

## CONSUMERS QUESTIONNAIRE

### SECTION A: BACKGROUND INFORMATION

- i. Questionnaire No .....
- ii. Date of interview .....
- iii. Interview's name.....
- iv. Name of respondent.....
- v. Ward.....
- vi. District.....
- vii. Region.....

### SECTION B: RESPONDENT CHARACTERISTICS

1. Age of respondents [      ] Years
2. Sex of the respondent [      ] 1= Male 2= Female
3. Educational levels
  - 1) None [    ] 2) Primary school education [    ] 3) Secondary school education [    ]
  - 4) Post secondary education [      ] 5) College/ university education [      ]
4. Household size [      ] number of people
5. Main occupation of the respondent [    ] 1= farming 2= non-farming
6. What are your non-farm income generating activities?
  - 1) Employment [    ] 2) Handcraft [    ] 3) Petty trade [    ] 4) Big business [    ]
  - 5) Others [    ] specify .....

### SECTION C: CONSUMERS' CONSUMPTION AND PREFERENCES

8. Where do you normally buy your daily food requirements?
  - 1) Market [    ] 2) Supermarket [    ] 3) Petty traders [    ] 4) Farmers [    ]
  - 5) Retail shops [    ] 6) Wholesale shops [    ]
9. For the case of eggs where do you normally buy them from?
  - 1) Market [    ] 2) Supermarket [    ] 3) Petty traders [    ] 4) Farmers [    ]
  - 5) Retail shops [    ] 6) Wholesale shops [    ]
10. What is the average price of eggs per tray/ per egg .....Tshs
11. What is your weekly egg consumption .....
12. Do you normally consider the source of eggs when buying? [    ] 1= Yes 2= No

0

13. Why do you consider source to be important?

1 .....

.....

14. What aspects do you consider when buying eggs?

.....

.....

.....

15. What are the major problems you encounter when buying eggs

.....

.....

.....

**THANK YOU VERY MUCH FOR YOUR COOPERATION**