ECONOMIC COORDINATION OF POULTRY VALUE CHAIN: COMPARATIVE ANALYSIS OF LOCAL AND EXOTIC CHICKEN BREEDS IN KIBAHA DISTRICT

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ABSTRACT

The study of economic coordination in chicken production targets to a wide continuum of coordination activities in poultry subsector in Kibaha District. It also aims to delineate similarities and differences between the two chicken breeds (local and exotic). The specific objectives include mapping of the two value chains, identifying governance structures in the value chains, assessing of potentials of different actors categories and also determining factors influencing participation in the selected chicken subsector. Data were collected from 90 households rearing chickens in the District; Descriptive analysis was done using comparative statistics, means and frequencies. Further Logit regression model was used to establish factors necessitating farmers to participate in chicken production. Although households participated well in chicken keeping, they lack formal coordination both within and between actors in the Kibaha District. Data analysis has shown that, few exotic chicken keepers are having verbal contracts with other marketing agents. Few local chicken keepers have membership to producer groups established by wards' agricultural and livestock officers, but no economic benefits were reported. None of the exotic chicken keeper was organised in groups. Meanwhile, economic benefits of various actors on linkages and roles were mapped. Gross margins for respective keepers and traders used to compare profit between actors. Local chicken have a very long chain compared to exotic chickens before they reached final end. Aggregators, retailers, and wholesalers have great roles in chicken transactions in the market. From the Logit model factors that drove keepers' participation decisions were; years of schooling (education level), family size, and experience in poultry keeping.

DECLARATION

I, **PETER DAVID** do hereby declare to the Senate of Sokoine University of Agriculture that this dissertation is my own original work done within the period of registration and that it has neither been submitted nor being concurrently submitted in any other institution.

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The above declaration is confirmed by;

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DEDICATION

I dedicate this work to the Almighty God who led the way throughout my study. My father David Peter Kulyakwave and mother Rose Issac Tarimo who both laid foundation for my education and devoted much of their time and moral supports. Lastly, to my wife Jane George Mwakyusa, Daughters; Linda and Lacrecia Peter Kulyakwave and my brother Godson David Kulyakwave who tolerated my absence from home.

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LIST OF ABBREVIATIONS AND ACRONYMS

ACT	Agricultural Council of Tanzania
DOC	Day Old Chick
FAO	Food and Agriculture Organization
GM	Gross Margin
HHH	House Hold Head
IIR	International Institute of Rural Reconstruction
JKT	*Jeshi la Kujenga Taifa*
KIT	Royal Tropical Institute
LIMDEP	Limited Dependent
MAF	Ministry of Agriculture and Fisheries
MLDF	Ministry of Livestock Development and Fisheries
NBC	National Bank of Commerce
NMB	National Microfinance Bank
PhD	Doctor of Philosophy
RIU	Research in Use
RLDC	Rural Livelihood Development Company
SME	Small and Medium Enterprise
SNAL	Sokoine National Agricultural Library
SPSS	Statistical Package for Social Science
TGM	Total Gross Margin
TR	Total Revenue
TVC	Total Variable Cost
UNIDO	United Nation Industrial Development Organization
URT	United Republic of Tanzania

CHAPTER ONE

1.0   INTRODUCTION

1.1   Background Information

In the recent past, the price of agricultural products particularly livestock products has been rising both in domestic and international markets due to rising income in newly emerging developing nations (Keogh, 2011). Livestock products have very high income elasticity, that is increase in demand has been drastic than increase in income as countries shift from lower to middle income economies. Increase in poultry consumption has been particularly dramatic widespread and fast, while demand of beef, pork, and dairy varies with cultural differences between countries. Future projections have shown that meat demand is expected to grow at roughly equivalent rates in different developing countries, with very large absolute increases in demand in China leading to large imports (Andrew *et al*., 2008; Delgado *et al*., 1999), that make the poultry production important worldwide since production of poultry is fast than beef and more cost effective.

Rapidly growing and changing livestock markets in the developing world provide real opportunities but also significant threats to market participation of the poor in those markets (Gebremedhin *et al.,* 2007) due to the increasing integration of national and world chicken markets, the changing nature of food demand in cities and the changing regulatory environment on the other hand. However, improving integration in all livestock markets and in particular poultry subsector markets for the poor small scale chicken keepers, can then help to benefit rapidly from the growing demand for chicken products. In addition, Muhiye (2007) mentioned marketing as an important aspect of any livestock production system and lack of chicken markets integration results into inability to produce high quality products due to lack of good technology, inputs, resources and market information

(Gebremedhin *et al.,* 2007). On a practical level, interest in market chain coordination has risen dramatically as supply chains have become increasingly globalized, and have tried to respond to the greater demands placed on them by consumers and regulators. In the agro-food sector, the dramatic rise in the power of supermarkets in many countries is associated with moves away from product sourcing through traditional wholesale markets toward vertically coordinated chains (Reardon *et al*., 2003; Collin and Michael, 2009).

1.1.1 Economic coordination of markets

In their study of competition and coordination in liberalized African cotton Poulton *et al*. (2004: page 146*)* defined coordination as "*the efforts or measures designed to make players within a market system act in a common or complementary way or toward a common goal*". Shaffieezedah and Abbas (2009) contend that coordination of material, information, technology and financial flow are the main issues to be considered in the economic coordination of any supply chain management. It brings the ideas that when markets are well coordinated, actors have to work and act according to their agreements. Thus, today's many market relationships seem to be antagonistic to the atomistic competition and traditional spot market transactions. Working on economic coordination of the market help determine the competitive advantage of any firm, and increasing control of various market determinant variables including prices, quantity, quality and terms of exchange.

The works of Rehber (2000) and Poulton *et al*. (2004) identify three types of market coordination which are in any production sector (agriculture sector inclusive) i.e. horizontal, vertical, and complementary coordination forms. In agricultural perspective, vertical coordination refers to the synchronization of successive stages of production and marketing with respect to quantity, quality, and timing of product flows (Collin and

Michael *et al.,* 2009). It is an important part of a competitive strategy in agricultural production and marketing in the management of a specific marketing channel (Kirstein *et al.,* 2009). FAO (2010) identifies three basic vertical coordination stages: open marketing, contract production and marketing, and integration through institutions.

Horizontal coordination is defined by Poulton *et al.* (2004) as "a relationship among actors (or even competitors) at a given stage of a marketing chain". If markets are coordinated horizontally there is a sense of collusion or competition of actors of the same stage in an industry for either inputs, human resources and skills required, and markets for similar products (FAO, 2011). Horizontal coordination may take different forms: relationships among companies, and relationship among keepers. The first denote relationship among companies decided to collaborate to provide inputs such as certified seeds, quality chicks, drugs, extension services, feeds, and financial assistance to keepers.

Prior services provision to farmer ensures companies to get supplied with end produces at a planned price, quality and quantity. Horizontal coordination form is coordination among keepers aimed to increase specificity of buyers' quality, quantity and timing requirements. Chicken keepers may decide to pull their resources in order to fulfill available supply tenders from supermarkets, hotels, or to any buyers at a regular interval. Poulton *et al.* (2004) and Jacquese (2011) pointed out the importance of horizontal linkages between firms at all levels in a value chain that can reduce transaction cost, create economies of scales and also can well contribute to increased efficiency and competitiveness of an industry.

Complementary coordination, on the other hand refers to the linkages among actors providing complementary services to keepers in a value chain (Poulton *et al.,* 2004).

This form of coordination is reported not to receive much attention in Africa (Hoff, 2002). Kydd (2005) contends that complementary coordination may look similar to both vertical and horizontal coordination as it might increase competition among actors when numbers of individuals providing similar services to same keepers may increase.

1.1.2   Value chain concept

Value chains are key frameworks for understanding how inputs and services are brought together and then used to grow, transform, or manufacture a product; how the product then move physically from the producer to the customer; and how value increases along the way. In order for value chain to be in place, there must be an activity and participants or stakeholders (Kaplinsky and Morris, 2004; WWF, 2008). These activities are like production, processing, distribution, and branding which all these require individuals or groups of actors to carry them onboard at different stages to meet demands from consumers. Likewise, participants and activities are both vertically linked together to make sure that the services or products reaches consumers from the production point. Value chains perspective provides an important means to understanding business-to-business relationships that connect the chain, mechanisms for increasing efficiency, and ways to enable businesses to increase productivity and add value (Kaplinsky and Morris, 2004; Ruijter de Wildt *et al.,* 2006).

1.1.2.1   Poultry value chain

The improvement in poultry production and control mechanisms is motivated by a desire to meet new demands from large supermarkets in towns basing on scale of supply, quantity and quality (Martinez, 2002). Globally, the management of the entire poultry value chain comprises thousands of small scale keepers compared to few larger commercial keepers who raise and sell most of chicken and chicken products to different

outlets (Keogh, 2011). Some sell to fellow farmers for immediate consumption and stocks, to traders at farm gate and others to local traders and regional markets. Normally, small scale keepers in Tanzania target to supply only local markets due to their small scale of operation (FAO, 2011).

Coordination of actors in poultry production cannot be overlooked, as their products are highly perishable with very short shelf life, thus require expensive refrigerators for protection and packaging materials to add value before being supplied to consumers (Erick *et al*., 2014). These have virtually been not affordable by many smalhoders forcing them to dispose off products at very early stages of marketing. The heightened speed of production, products' perishability (meat and eggs) and high production and marketing costs have all been found to be significant challenges for monitoring in poultry value chain. This is because they increase cost of exchange throughout the marketing systems. This is reported to be due to increase in the cost of exchange throughout the marketing systems (RIU), 2011). Hence, the need to have production and marketing contracts between chicken growers and other actors along the chain has been necessitated, and to date vertical integration and marketing contracts are common in the poultry industry around the world.

1.1.2.2 Poultry farming in Africa

Poultry husbandry is widely practiced in Africa where almost every homestead keeps some mainly for consumption and income generation. Poultry production as a component of livestock production is reported to contribute almost 30% of agricultural output in most African countries' economy (Muhiye, 2007). Subapriya (2007) has showed that Uganda has a big reservoir of local poultry though generally produce low meat and eggs. But an effort to increase profitability is enhanced by carrying cross breeding with exotic breeds.

Poultry production as one segment of livestock production has high privilege addition to the livestock sector in Tanzania (Msami, 2007). This is because most of African countries including Ethiopia, Tanzania, Niger Delta, and others have been increasing efforts to commercialize poultry subsector having known for its contribution to the their economies. Alabi *et al.* (2006) indicated that in the Niger Delta family poultry husbandry was contributing about 35% of the income of households headed by women, which represents about 25% of Nigerian minimum wage and 50% of the per capita income.

In the larger part of Africa, poultry farming in particularly chicken production is generally considered to be part of economic activity to increase animal protein besides household income contribution. Keeping local chickens is one of the oldest economic activities carried by natives of African continent before the introduction of the exotic chicken breeds (Broilers and Layers) which are bred for meat and eggs production for commercial bases. Chicken production is carried under extensive, semi-intensive (back yard), and intensive systems. Option for any production system depends on the financial capability, land size, and the intended intention of the household.

Religious and cultural considerations are one of the intentions for keeping chicken in the rural areas of Africa. Poultry enterprise provides additional means of employment to people, alleviate poverty, reduce malnutrion cases to both rural and urban people, also provides employment opportunities for many subsidiary industries such as poultry feed, equipment, pharmaceuticals, eggs and meat processing units (Shiraz, 2008). Msami (2007) reported similar benefits to have accrued from chicken production in Africa particularly Tanzania, though added that economic value estimates from poultry are difficult to ascertain due to poor availability of proper production data.

1.1.2.3   Poultry farming in Tanzania

In Tanzania, more than 80% of the population lives in the rural areas where livelihood depends on agricultural activities. Agricultural contributes over half of country's GDP and export earnings (NBS, 2012). Poultry sub-sector component in agricultural sector contributes to employment, food production, exports and is one of the main sources of raw materials for the industrial sector. Report by the Government of Tanzania (URT, 2008) shows that livestock sub-sector grew by 4.1% in 2008 compared to 2.4% in 2007 and was expected to grow by 9% by 2010. By 2008 there were more than 19.1% million cattle, 53 million poultry, 13.6 million goats, 3.6 million sheep and 1.4 million pigs and other livestock species in Tanzania.

According to NBS (2012), in 2011 Tanzania had approximately more than 53 million poultry of which 33 million are of indigenous breeds, which are predominantly kept in the rural areas. Commercial birds are approximately 20 million comprised of mainly layers and broilers (in semi commercial farms). The remainders are other types of poultry such as ducks, turkey, guinea fowls and pigeons. Tanzania mainland has approximately over 35 million local chicken and up to 700 000 exotic chicken while Zanzibar has about 1 million local chickens and about 27 000 exotic chickens. Shinyanga region is blessed with more than 4 million local chicken followed by Mwanza with about 3.2 millions. Exotic chicken is kept by about 15% of Tanzania smallholder keepers, and statistics show that large concentration is found in Dar es Salaam (30%), Kilimanjaro (15%), Pwani and Dodoma (15%) (FAO, 2011).

1.1.2.4   Poultry sub-sector in Kibaha

Livestock production in Kibaha District is ranked second after farming of both food and cash crops. Livestock production involves the indigenous and exotic breeds, these includes

dairy cattle, poultry (local and exotic), pigs, sheep and goats. It is estimated that about 15% of the population is relying on livestock production while the rest do other economic activities (District Agriculture Development Annual Report, 2010/2011). According to RIU (2011) estimates, there are about 1.6 million chickens which is highest number of all livestock in Kibaha district.

Chicken farming in Kibaha constitute two chicken breeds; the local breed and exotic breed both layers and broilers. For sake of this study, broilers which are bred purposely for meat production were considered because mostly they take short time to reach market weight. From four to five weeks (with an average of 1.3 kg to 1.4 kg) a broiler chicken is ready for consumption as opposed to local chicken which weigh (1.8 kg to 2.0 kg) at 14 weeks and above. Local chicken are purposely kept for both eggs and meat consumption but in recent years demand for local chicken meat has increased, thus shifted the minds of keepers trying to capture local chicken market (RLDC, 2010).

Local breed comprises the native chicken which are found almost around Tanzania rural and urban areas such as *kuchi* and naked neck chicken. They are characterized by small sized body, slow growth rate, highly resistance to disease and well adaptable to local environment compared to the imported exotic breed. Previously local chickens were kept only for subsistence in Kibaha district like any other regions in Tanzania. But in recent times due to high demand from urban areas including hotels, supermarkets, and restaurants' consumers, farmers are trying to increase their production to cover the supply.

The problem of small sized body and slow growth rate have been solved by introduction of exotic cockerels to smallholders by difference organization such as Oxfam, RIU and Ruvu JKT Poultry Farm (FAO, 2011). Through those projects the resulted offspring from

cross breeding between exotic cockerels and local hens found to possess important genotype upgraded for body size, growth rate and adaptability to climatic condition (Oxfam, 2011). Ruvu JKT poultry farm and other smallholders are struggling to increase local chicken production by supplying local Day old chicks (DOC) to farmers in Kibaha and beyond at reasonable prices. The challenges to meet market demand include the long time to attain market weights, inadequate chicks supply, inaccessible to markets, unfavorable prices and inadequate feed availability. (Kibaha district report, 2010/2011).

Due to their high growth weights and short time to reach market time, broilers have received attention of few smallholders and especially those with high income earnings in Kibaha District. Broilers unlike local chickens demand a significant level of management with moderate to high capital since they are heavy feeder, high medications and good housing since they are susceptible to diseases if climate is not conducive including high temperatures (Kibaha District Report, 2012). Broiler chicks (DOC) are not an issue as Coast region is blessed to have Mkuza Chick Company, Kibaha Education Centre, and Ruvu JKT Poultry Farm which produce and sell chicks to farmers every week. Other famers obtain chicks from Interchick Company, Amadori Company and some receive from Ken-Chick Company from Kenya.

Due to the intensive managements required, only a few smallholders in rural areas have managed to raise exotic chickens (Erick *et al.,* 2014 and Muchadeyi *et al*., 2007). Significant numbers are produced from commercial farms and few individual farmers in per-urban and urban areas of Kibaha District. Chicken farming is still too traditional in Kibaha, and not competitive in the existing markets. There is no doubt that this sub-sector is very important in Kibaha District due to severe climatic changes with negative impacts to support farming for both cash and food crops.

According to Districts Livestock Report (2010/2012) poultry farming is one of the major economic activity in the district, but there are a number of challenges which hinder its development. In the RIU (2011) study, the following challenges were identified: absence of proper chicken market and market information, low ability to meet demand (insignificant volume) for Kibaha and Dar es Salaam chicken market, and lack of access to efficient and reliable inputs.

1.2   Problem Statement and Justification

Poultry makes a significant influence to household food safekeeping throughout the developing world. For decades, local chickens kept only for meat purposes have been depended by many families as an alternative source of income in Tanzania, but introduction of exotic breed "broilers" for meat provides more selection and diversifications to both keepers and consumers. The two breeds apart from increasing diversification to keepers also brought up challenges on price competition to consumers (RLDC, 2010). The challenges in price, demand and supply from consumers' preferences create attention to chicken subsector participants to decide the best ways to deal with the two breeds in the market.

In recent years after introduction of exotic chicken mainly broilers which are bred for meat production) in the poultry industry and with fast growth rate and fast cash realization, more efforts have been turned to exotic breeds (Smith and Eyzaguirre, 2007). Both local and exotic chicken farming serve as an investment and source of security for households in addition to their use as sources of meat and eggs for consumption and income especially to female-headed families (Muchadeyi *et al*., 2007 and Olugbem, 2009). Food insecurity is the biggest challenge facing Tanzanian population today as is the case with other developing countries (FAO, 2007).

Realizing the importance of improving chicken production in Tanzania, a number of studies have been conducted targeting to develop entire poultry sub-sector. The studies are based on disease control (Yongolo 1996; Mdegela, 1998), productivity and nutritional status (Mwalusanya, 1998), transportation (Mlozi *et al.,* 2013), Marketing (Minga, 2003), feed utilization (Mohammed, 2011) and local chicken characterization (Guni, 2013; Okele and Isinika, 2011). There has not been a study mainstreaming on comparing the market performance of local and exotic chicken in Kibaha district, actor relationships at different nodes in the two chains for value addition and or marketing including on examination of the synergies which can be shared in promoting the chicken market/industry.

Therefore this study was carried out a comparative analysis of the two value chains in terms competitiveness and profitability on both production and marketing fronts in Kibaha District. It is envisaged that improvement of the chicken industry from production to marketing could result increased sustainable income generation capability of the rural societies who entirely depend in agriculture. Furthermore the study is expected to contribute more to the existing body of literature on chicken industry which is beneficial to number of potential users ranging from keepers, traders, feed manufactures, policy makers, local and central government, to interested non-governmental organizations.

1.3   Objectives of the Study

1.3.1   Overall objective of the study

The overall objective of this study was to investigate local and exotic value chains in Kibaha District, and ascertain both inter and intra comparative advantages between the two chains.

1.3.2 Specific objectives

The study attempted to address four specific objectives which include:

i. To map and compare value chains for local and exotic chicken in Kibaha District.

ii. To identify the types of governance structures that exists in the two chains in the study area.

iii. To assess the profitability of different actor categories in the two chains in the study area.

iv. To determine the factors that influence farmer's decision to participate in either of the two chicken breed chains.

1.3.3 Hypotheses of the study

i. Participants of the local chicken value chain earn higher profits than their counterparts in the exotic chicken value chain.

ii. Farmers' decision to participate in the exotic chicken value chain is influenced by farmer's socio-economic characteristics.

1.3.4 Research questions

i. Who are the key players of the chicken value chain in the study area?

ii. What are existing types of governance structures in the local and exotic chicken value chains in the study area?

iii. How do value chains for local and exotic chicken breeds in Kibaha District compare in terms of structure, governance and profitability?

iv. What are the influencing factors for farmers to participate in the local and/ or exotic chicken value chain in the study area?

1.4   Significance of the Study

The study gives detailed information on how local and exotic value chains are currently operating in Kibaha District. It further points out similarities and difference by mapping the chain actors and stakeholders on the line of roles and gross margins. The studies also identified, and make comparisons of governance structures that exist, and further recommend for enhancement of actors' organizations that will assist in market development. The findings of this study will benefit chicken farmers, processors and traders, policy makers, governmental and non-governmental organizations that have a stake in local and exotic chicken marketing system, and give plans for interventions in the future.

1.5   Organization of the Study

This study is organized into five chapters. The first chapter provides a general background to the study, problem statement, study objectives, hypotheses and research questions. The second chapter gives a critical review of the literatures relevant to the study while the third chapter presents a detailed description of the study area and methodology employed. The fourth chapter presents results and discussion while the last chapter presents conclusions and recommendations drawn from the study findings.

CHAPTER TWO

2.0   LITERATURE REVIEW

2.1   Value Chain Concept

The concept of value chain was first brought forward by Michael Porter in mid 1980s as a basic tool for enhancing enterprise to achieve competitiveness. Since then, the concept has been developed by several authors in respect of different industry and subsector requirements. Value chains are key frameworks for understanding how inputs and services are brought together and then used to grow, transform, or manufacture a product, then how product then moves physically from producer to customer, and how value increases along the way (Kaplinsky and Morris, 2004; KIT, 2008; Ruijter de Wildt *et al.,* 2006).

Hobbs and Young (2000) recounted that value chain has significance implication for small-scale keepers of the developing countries as they struggle to fill both local and international customers' requirements. Brown (2009) has defined value chain as "the set of interconnected, value-creating activities undertaken by an enterprise or group of enterprises to develop, produce, deliver and service a product or service." On the other hand, Jacquese (2011) suggested that value chains include all of the vertically linked, interdependent processes that generate value for the consumer, as well as horizontal linkages to other value chains that provide intermediate goods and services.

In addition to the above hints, FAO (2010) contend that value chain consists of sequential activities together with actors aiming to reach a certain common goal. It is basically characterized by interdepended value chain functions and linkages. Jacquese (2011) holds that the chain exist where operators share common visions and goals with assured mutual decisions to meet goals while sharing both risks and benefits. Hence the better the

interdependence among actors the greater the end value generated along value chain stages.

According to Karuma (2009) the term "value" and "values" in value chain are incorporated to characterize business relationship among enterprises related to food businesses. Thus, in making sure the value is added there must be a marketing system together with players (actors) to facilitate coordination and linkages. In addition to that the competitiveness of a value chain is determined by its economic coordination and governance structures.

2.2   Value Chain Mapping

UNIDO (2010) and ILO (2009) describe value chain mapping as a process of drawing a first visual representation of the structure of value chain and finding out its main characteristics. Furthermore, IDRC. (2007). narrated that Chain map is the core of any value chain analysis as is used to obtain an early summary on the partners and their functions in the value chain as well as the flow of products through the chain. It illustrates the way the product flows from raw material to end markets, and presents how the firm/industry differs in functions in terms of organizations and governance. Chain maps can also provide information on the supporting functions in the value chain (UNIDO, 2010).

Mapping of partners as they interact along nodes involves many integrated functions. Thus flows of volumes are accompanied by respective units along nodes implying that values addition had taken place to products from keepers to consumers (IDRC, 2007). Moreover, according to Michael *et al.* (2010) value chain mapping creates awareness of stakeholders to look beyond their own involvement in respective chains. ILO (2009) reports some

essentials for studying value chain map as it serving to identify and categorize actors involved in the chain, give consumers ability to trace directions from which products passes after production, and shades light from where different business integrators can support development of the chain.

2.3   Value Chain Coordination

According to ITC (2003), Value chain coordination is regarded as an institutional set up of the marketing agents in the value chain. Further, it examines relationships between actors, and describing how different activities are conducted along the value chain. Coordination is needed because of mutual dependencies or interdependencies between different activities, and also different transaction in the value chain (Karel *et al.* 2004; Makindara, 2012). Value chain coordination deals with the organizational coordination between functions and activities in the supply chain, and is considered to be one of the crucial components in an organization's effort to achieve efficient and effective value chain management practices (Makindara, 2012).

Referring to the integration of small farmers in the horticultural chain in Tanzania, FAO (2010) argued that many small-scale farmers in Tanzania failed to meet demands for export markets as a result of poor market coordination. Furthermore, Rehber (2000), identified three types of coordination which exists in any production firm as: horizontal, vertical and complementary coordination. Sewando (2012) pointed that, vertical coordination relationship between firms at different nodes in value chain is critically responsible for moving products or services from production to the end market. It was also noted that, contract farming is one of the vertical coordination. Tomas *et al*. (2008) contended that value chain coordination provided bases for different interrelationships between functions and activities in the supply chain (i.e. customer orientation, competitor

orientation, logistic management, operational management and supply management). Hobbs *et al.* (2001) and also Makindara (2012) contended that having close coordination of all activities along value chain from production to consumption is always recognized to be a successful factor not to be overlooked in any food industry.

2.4   Value Chain Governance

A chain consists of a number of different actors each specializing in different functions, but linked through certain ways of cooperation in a network (Sturgeon and Florida, 2004)). Value chain governance is one of the main chain features that distinguish a value chain from the ordinary market place. Governance refers to the inter-firm relationships and institutional mechanisms through which non-market co-ordination of activities in the chain is achieved (Humphrey and Schmitz, 2001). It involves the definition of the terms of chain membership, incorporation/exclusion of other actors and, re-allocation of value-adding activities among others.

According to Muradian (2005), value chain governance refers to the extent to which the leading firms exert control over information exchange and production activities, and therefore are able to shape the functional division of labor along the chain and to set entry barrier. According to Kaplinsky and Morris (2004) governance of value chains encompasses four stages such as setting rules, supporting other actors in the chain in order to be able to adhere to the rules, monitoring adherence to the rules and imposing sanctions where rules are violated. On the other hand, Purnomo *et al.* (2009) contended that, governance in value chains or marketing systems refer to how chain control is monitored and achieved together with its impacts on the relationship between participants. Thus, governance within value chain has been identified as an important determinant of how value is controlled and distributed along a value chain and its entire effects to livelihoods

(Schreckenberg *et al*., 2006). Particular determinants include how access to a market is governed to determine how, where and when actors participate in a value chain, how and where funnels for technical assistance enter the chain and who and which stages of value chains are promoted for policy initiatives (Purnomo *et al.,* 2009; Keane, 2008).

2.5   Market and Marketing

2.5.1   Market

Zeberga (2010) gave an insight about market as refer to institutional and organizational arrangements which give room for products exchanges between market agents. According to the uthor's definition the term market denote a place and or means by which sellers and buyers are able to meet and facilitate their exchange and transactions. It is a known mechanism by which transaction and exchange can be perfomed (FAO, 2010).

In describing indigenous chicken production and marketing in central Tanzania, RLDC (2010) defined market as a geographically defined place where sellers and buyers do meet to make exchange of their livestock products through pricing and transaction. Moreover, market is generally divided into two main types; the informal and formal markets. Informal markets are largely characterized by seasonal supply and demand and mostly dominate in the rural areas. As opposed to formal market, informal markets' participants are starved with formal marketing knowledge as well as communications regarding prices, demand and supply. Formal markets are normally found in regional towns, and national markets (Zeberga, 2010). Due to poor market linkages, market communications and skills exchange of smallholder farmers in Africa have failed to have access to these formal markets.

Today's market structures need not require both sellers and buyers to have physical contact in order to make exchange operations. They have been simplified to enable distant marketing by aid of technology advancement and long term relationships (Lundy *et al*., 2004 and FAO, 2011). The only features appearing linking markets' agents whether they are distant or physically placed are; commodity, pricing and exchange or transaction (Zeberga, 2010).

2.5.2   Marketing

According to Jahan (2011), marketing as opposed to market is referred to as performance of a related business activity which enables flow of agriculture produces from production point to the final end. Thus, marketing as a process enable participants of a certain market to exercise commodity and information exchanges. About a decade ago, Mendoza (2004) defined market as a complex system with intermediaries which are related to each other from production, distribution, and consumption. Whereas, Kotler (2003) associated marketing as a social process influenced by demand and supply forces through which different agents obtain what they need.

Marketing as a process involves different channels (marketing channels) from which products move from production, processing, distribution to consumption (Jahan, 2011; Sarsar, 2009 and Will, 2008). Depending on the existing marketing structure in an area, the specific channel may be long or short (Zeberga, 2010 and Islam *et al.,* 2001). However, Takele (2010) described marketing channel as specific routes which different products passes through the hands of different intermediaries before reaching the final consumers. Armstrong (2008) contended that, marketing channel is a business structure involving flows of commodity in the supply chain.

Muthuya (2010) commented that marketing channel can either be direct when keepers sell direct to the final consumer or indirect when a number of agents are involved before reaching the final end. Understanding these channels enable keepers to opt for the best alternative channel which can raise total income and increase keepers' market shares. Furthermore, (Lyatuu, 2010) identified four marketing channels for indigenous leafy vegetables in Tanzania which include, keepers →consumer, keepers → retailers, keepers → wholesalers and retailers → consumers. Kenal *et al.* (2002) observed that small scale poultry market outlets in Ethiopia that were diverse and their participation behaviors differ as well on these channels.

Sonaiya (2000) documented that, type of a marketing channel to be followed by farmer depends on knowledge possessed by farmers on markets networks, price fluctuations and absence of market information. The absence of clear and up to date market information fueled farmers to sells agricultural products within their vicinity regardless of low prices they received (Goldbatt, 2014).

2.6 Review of Empirical Methodologies in Similar Studies

2.6.1 Gross margin analysis

Gross margin (GM) analysis is one of the means for deducing profitability of an enterprise (Turuka, 2000). Debertin (1993) documented that for a better measurement of how efficient an enterprise (SMEs) pay back (returns to capital) the GM can well serve the purpose. When comparing profitability between two SMEs as for the case of this study and at various nodes then GM were used as proposed by Kotler (2003). GM is taken as a difference between total revenue (TR) and total variable costs (TVC) involved in the production services. Empirically, several authors have used GM method to analyze profitability of different enterprises in agriculture sector. More specific, Akyoo (2004)

applied GM method on bean farming in Arumeru district; Philip (2001) on calculating profitability for medium scale sugar farmers in Morogoro; Silomba (2000) on bean farming in Kigoma on profitability across enterprises at different segments along value chain.

Furthermore, Eskola (2005) employed GM to analyze difference in profitability between rice market agents at two markets (Ifakara and Dar es Salaam) in Tanzania. Advantage of Gross Margin (GM) as an economical analytical tool include its easiness to understand, its ability to draw logical interrelation of economic and technological parameters, and also its ability of rational variations for the operational structure of enterprise or individual farmer (Philip, 2001).

Gross margin method is referred to be one of the most successive method for determining efficiency and competitiveness of SMEs in agriculture sector. It can be used to make decisions on which enterprise is worth to undertake, and also its healthy status (Phiri, 1991).

However, GM method has its own disadvantages as put forward by several authors as; its' failure to account for variation on fixed costs, and failure to make allowances for depreciation and absolescence of fixed assets (Ponte, 2002; Philip, 2001). Inspite of those disadvantages GM still is one of the best method to analyse profitability in Small and Medium Scale Enterprises in agriculture sector, and especially in their short run periods of operations (Philip, 2001) only when the nature of the enterprise does not entail much of fixed costs.

2.6.2   Sub-sector mapping analysis

Sub-sector mapping analysis is a method used to map Sub-sector chain linkages between actors and their activities in a value chain (Michael *et al.,* 2010). In Sub-sector mapping, visualization of networks is needed in order to get a better understanding of connections between actors, demonstrate interdependences between actor while creating awareness of stakeholders to look beyond their involvement in a value chain (ILO, 2011; Michael *et al.,* 2010). Subsector mapping indicates the flow of a commodity from producer to consumers and other actors involved. More important is that the interrelationship between and among actors is well shown during mapping process (Lusby, 1999). In mapping process the essential components to be included are; market participants, functions, markets and market channels (Lusby, 1999). The availability of these components ensures good flow of communication and products and services from one point to another (Mmasa and Msuya, 2012).

Furthermore, Mmasa and Msuya, (2012) documented that during mapping analysis of any agricultural commodity chain the following points should be observed; examining of the interrelationship between enterprise that produce, process, and distribute within single channel; identification of constraints and opportunity facing enterprise along with potentials to supports the initiatives, and identification of sources of leverage where support initiatives can have greatest impacts.

2.6.3   Empirical studies on sub-sector mapping analysis

Empirically the method has been used by several researches to assist mapping of actors, enabling environment, and service provider in a value chain. More specific, Mmasa and Msuya, (2012) employed the same method on mapping the Sweet potato value chain linkages between growers, processes and activities in value chain in Mwanza and

Shinyanga, Tanzania; USAID (2007) used sub-sector mapping approach to map cocoa bean value chin in Indonesia where, actors and their function was mapped. Beekeeping value chain performance in Rwanda was mapped by SNV (2009) to identify actors, functions and roles of service providers, and the interrelationship between actors; also Lusby (2004) on Milk Subsector/Value Chain to identify different actors and interrelationship between roles and function in milk subsector.

2.6.4   Regression analysis

Generally, regression analysis is concerned with describing and evaluating the relationship between a given variable and one or more other variables. Thus is an attempt to explain movement in a variable by reference to movements in one or more other variables (Manage, 2007). The regression analysis can be used to predict the outcome of a given dependent variable based on the interaction of other related explanatory variables.

CHAPTER THREE

3.0   RESEARCH METHODOLOGY

3.1   Conceptual Framework of the Research Study

The importance of conceptual framework has been put forward by Adam and Kamuzora (2008) who view it as both a foundation and pillar of a research study especially on focusing researcher(s) on the data to collect. The conceptual framework thus helps to show and identify relationships among the variables 'dependent and independent variable' (David, 2013).
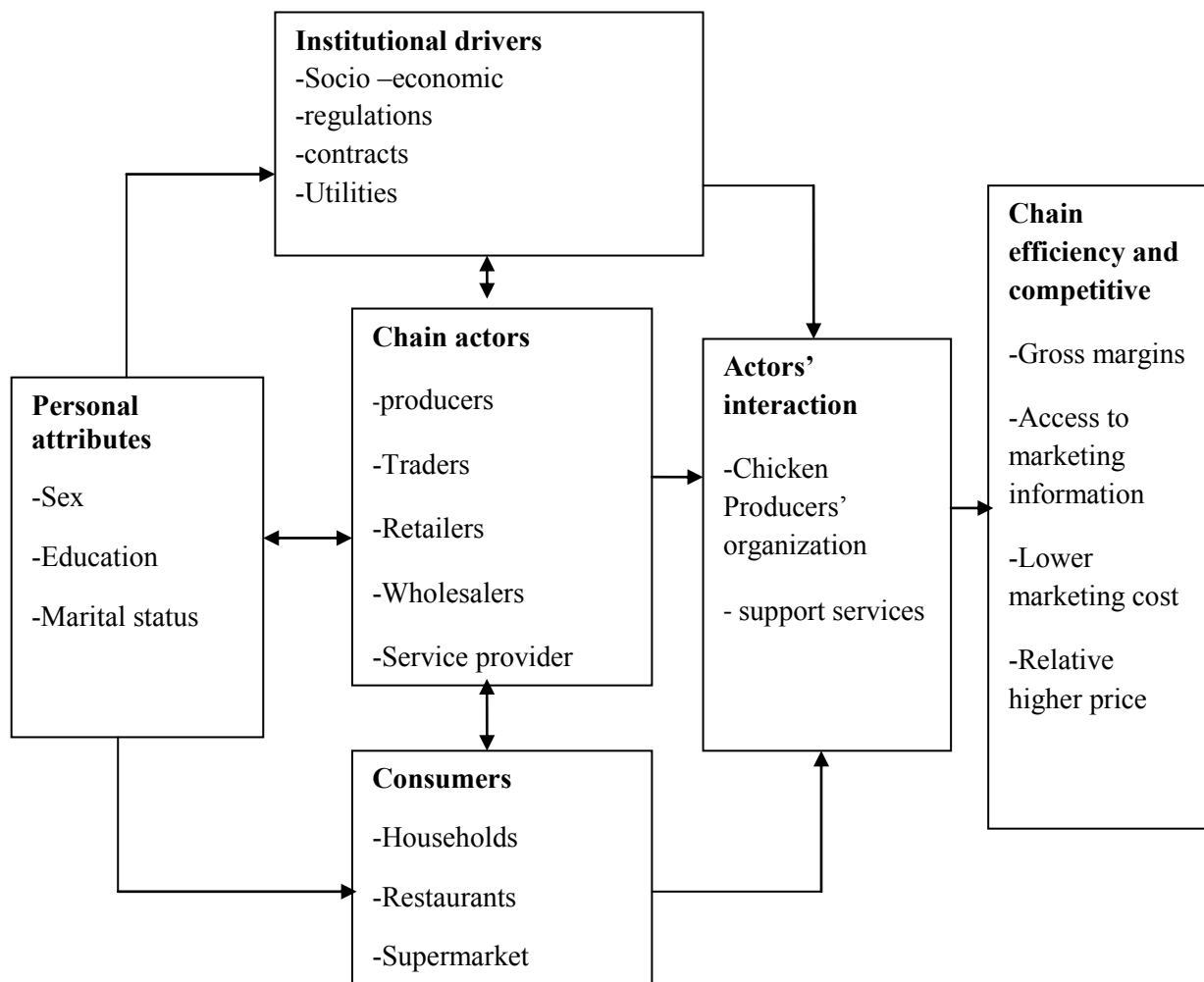
Figure 1: Conceptual framework of the research study
Source: Model developed by researcher

Thus, conceptual framework developed by researcher shows how relevant variables relate with each other so as to be able to address specific objectives of a particular study. The study's conceptual framework (figure 1) depicts that; coordination among chain actors' and governance is mostly affected by institutional and non-institutional factors, and due to the nature of chicken business both private and public sectors seem to have direct influence on the chicken business (Figure 1). If marketing system is well coordinated and hence efficient, poultry keepers in the study area can realize a relatively higher gross margins, lower marketing cost, and access to marketing information.

3.2   Description of the Study Area

This study was carried in Kibaha district in Coast Region and three wards namely Mlandizi, Kilangalanga and Kwala were the research sites. Kibaha district and specifically the three wards were chosen because chicken keeping is done virtually by every household in the district. Moreover, Kibaha district was chosen because several researches had already been done, and were mainly on animal feeds and disease control but none of researches were on poultry value chain coordination (See the problem statement).

3.2.1   Location

Kibaha district which is located in the Eastern part of Tanzania mainland is among the six districts of Coast Region. The district lies between latitude $6^0 - 8^0$ south of equator and longitudes 38.9^0 to 39.05^0 East. It is located 40 km from Dar - Es - Salaam City along Tanzania – Zambia Highway. It shares common boundaries with Bagamoyo district in the North- West and Morogoro rural district and Kisarawe districts to the South. Kibaha district has 11 wards with 33 villages and 46 sub-villages which cover an area of 1142 square km (114 218 ha) out of which arable land is 102 796 hectares (90%). The area, which is under cultivation, is 51 100 hectares, which is 50% of the total arable land.

3.2.2 Climate

The district experiences hot sunny weather throughout the year with maximum temperature of 30^0C in December and a minimum temperature of 25^0C in July. There are three pronounced seasons; a dry season of June to September, and two rainy seasons of January to March whereby short rains begin from October to December, and long rains from mid March through June.

3.2.3 Demography and economic activities

According to 2010 population and housing census, the district had a population of 53 751 people of whom 26 843 are males and 26 908 are females. The district's population distribution per ward as per 2012 population and housing census report was 103 690 as shown in the Table 1. The main economic activities in Kibaha district include agriculture, livestock and fisheries. The potential crops includes cassava, maize, paddy, simsim, cashew nut, sorghum, fruits and vegetables. Livestock breeds kept are indigenous dairy cattle, sheep and goats, pigs and poultry (local and exotic chicken). Over 80% of the population in Kibaha district is practicing agriculture, and the methods used are still based on traditional practices (SNV, 2011). The GDP per capita of Kibaha community stands at Tshs 132 000 per person as per Kibaha District Agricultural Development Annual Report (2012/213). Therefore, about 15% of the population in Kibaha District is engaged in Livestock keeping. Most of the chickens are kept intensively in urban areas while the rest are found in rural areas. Much fewer people are in trade with small retail shops, food vending and food processing under small scale industries.

Table 1: Kibaha District Population Distribution per Ward 2013

Ward	Total number of people	Number of households
Soga	4 744	1 257
Mlandizi	27 220	4 864
Ruvu	4 663	991
Kwala	4 222	739
Magindu	6 195	1 216
Gwata	10 832	2 950
Dutumi	2 611	560
Kikongo	7 223	1 951
Bokomnemela	5 768	1 359
Janga	15 760	3 894
Kilangalanga	14 452	2 903

Source: 2013 Population and Housing Census General Report

3.3 Research Design

This study employed a cross-sectional research design. Under this design, data from household respondents were collected at a single point at a time without repetition from the representative population. This design is the most appropriate, cost-effective, less time consuming and it is useful for descriptive purposes as well as for determination of the relationship between and among variables at a particular point in time (Babbie, 1995).

3.4 Sampling Design

3.4.1 Sampling technique and sampling procedures

Generally, two types of sampling procedures were adopted in this study so as to arrive at required sampling units of 90 respondents. This included the simple random sampling and the purposive /judgmental sampling. Hence, three wards of Mlandizi, Kilangalanga and Kwala were selected purposively to represent the rest of the district, and from each ward three villages were also selected adding up to nine villages. Purposive technique was used to select only villages with the highest number of chicken keepers as was recommended

by Kothari (2004). The selected villages include Mlandizi, Vikuruti and Dosa villages; Kilangalanga, Mtongani and Disunyara village, and Mwembengozi, Kwala and Dutumi villages from Mlandizi, Kilangalanga and Kwala wards respectively.

Simple random sampling technique was employed to capture household respondents. In this study, a total of 30 households (10 from each village) were selected adding up to 90 chicken rearing households who were interviewed in Kibaha. The sample size is based on Bailey (1994) argument that around 30 cases seem to be the bare minimum for studies in which statistical data analysis could be done. Purposive sampling and snowballing methods were employed to select 10 chicken traders. Due to geographic location it was difficult to locate traders in the villages, so traders were identified by keepers themselves and thereafter, the same trader was then used to indicate other fellow trader one after another for interviews.

A snowball sampling technique was adopted because members of the population have not all been previously identified and were more difficult to locate or contact than known populations (Coleman, 1958; Goodman, 1961; Spreen, 1992). This sampling technique can be defined as "a non-probability sampling technique in which the researcher makes initial contact with a small group of people who are relevant to the research topic and then uses these to establish contacts with others" (Bryman, 2008).

3.5   Methods of Data Collection

The study used both primary and secondary data to obtain precise information as per study's conceptual framework.

3.5.1 Primary data

Primary data were obtained from chicken keepers, traders, transporters, and other market participants involved in value chain of poultry production and marketing through semi-structured questionnaire (Appendix 1), face to face interviews and observation methods. Administration of a structured and semi-structured interview was done by the researcher himself. Variables for data collection include the socio-economic characteristics such as respondent's age, gender, education levels, households' composition and occupation, production methods, production costs as well as marketing information.

3.5.2 Secondary data

Secondary data provide second hand information and include both raw data and published ones (Saunders *et al.,* 2004). Secondary data (such as state of production, volumes of chickens, chicken production statistics) were obtained from difference sources such as National Bureau of Statistics (NBS), research journals, magazines, Sokoine University of Agriculture National Libray (SNAL), Ministry of Livestock Development and Fisheries (MLDF), internets' websites and from Local villages offices.

3.6 Methods for Data Analysis

According to Kothari (2004), data analysis refers to computation of certain measures along with searching for pattern of relationship that exist among variables. Both qualitative and quantitative methods were used in the analysis so as to arrive at the intended relationship among variables. Hence, data was coded, summarized and analyzed by the use of Statistical Package for Social Science (SPSS) version 16.0, Excel and LIMDEP version 8 software programs.

3.6.1 Qualitative analysis

This involved computation of descriptive statistics such as mean, cross-tabulation and frequencies which summarized socio-economic characteristics of the respondents.

a)   To map and compare value chains for local and exotic chicken in Kibaha District

Mapping of chicken value chains (local and exotic chickens) was done by the aid of sub-sector mapping analysis. In this analysis, the connection between actors together with their activities were identified and mapped. Qualitative data were analyzed by content /context analysis whereby connection of their activities, interdependences, and their activity processes were collectively considered to evaluate each chain linkages. In each value chain: input suppliers, keepers, wholesalers, retailers, rural aggregators, transporters, and also consumers were qualitatively employed in the mapping.

b)   Identification of the type of governance structures existing in the two value chains

Descriptive analysis was carried out to assess coordination structures of the chain which involve modality and establishing relationships between actors in the chains in terms of selling/procurement style, payment modality and services provided by firms or institutions to the chain's participants.

3.6.2 Quantitative analysis

This involved analysis of profit levels, prices and costs for actors at different nodes of the chain to enhance comparisons between local and exotic chickens in the research area on those attributes. Value chain analysis involved determination of gross margins for all actors along each node of the value chain and then comparison was done for similar actors

in the two chains. Some attributes were also analyzed to identify how they influence decision for participations on the value chain.

a) Assessment of the gross margins among local and exotic chicken actors in the value chain

Microsoft Excel was used for quantitative techniques analysis to compute profitability of actors among the two chains. GM was obtained by multiplying the physical products (number of birds) and price (Tshs) minus Variable costs. The equation was as follows:

$$GM = \sum TR - \sum TVC = \sum P_y Y - \sum PxX \quad \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots(1)$$

Gross Margin for Local chicken

Gross Margin $(GM)_L = \sum TR - \sum TVC = \sum P_{yL}Y_L - \sum Px_L X_L \dots\dots\dots\dots\dots\dots\dots\dots\dots(2)$

$\sum TR$ = Total Revenue, $\quad \sum TVC$ = Total Variable Costs.

P_{yL} = Price of chicken, $\quad Px_L$ = Price of inputs used in per chicken

Y_L and X_L = Quantities of local chicken and input

GM for Exotic Chicken

Gross Margin $(GM)_e = \sum TR - \sum TVC = \sum P_{ye}Y_e - \sum Px_e X_e \dots\dots\dots\dots\dots\dots\dots\dots\dots(3)$

$\sum TR$ = Total Revenue, $\quad \sum TVC$ = Total Variable Costs.

P_{ye} = Price of chicken, $\quad Px_e$ = Price of inputs used in per chicken

Y_e and X_e = Quantities of exotic chicken and input

When the GM is expressed in percentage or Unit is calculated by following equation:

$$\textbf{Percentage/unit=GM= (TR – TVC)/TR}\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots..(4)$$

b)   Identification of factors influencing farmer's decision to participate in exotic chicken value chain

A logit regression model was used to identify factors that influenced farmer's decision to participate in the exotic chicken value chain. Y in the model was dichotomous variable which took a value of 1 if a farmer participates in the exotic chicken value chain and value of 0 if was otherwise. Therefore, Y was the dependent variable as estimate of outcome using either some or all of the independent variables. This model was run by LIMDEP version 7.0, developed by Willium Green.

Since it is a comparative study between local and exotic chicken value chains, individual respondents have only one choice decision of whether to participate in either local or exotic chicken value chain. Therefore, there was no chance for individual keeper to participate in both two chicken value chains at a time as could hinder to draw conclusions. The theoretical model specification was as follows:

$$\text{In} \left\{ P_i / (1-P_i) \right\} = \beta_o + \beta_1 X_1 + \dots \beta_n X_n + \mu \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \quad (5)$$

Where,

P_i: probability that $Y_i=1$, and $(1-P_i)$ is probability that $Y_i=0$

Y   =   Dependent Variable

β_o =   Intercept of the regression equation

$\beta_1 \dots \beta_n$ =   Parameters to be estimated from $i^{nth} = 1$ to n^{th}

$X_1 \dots X_n$ =   Independent variables ranging from $i^{nth} = 1$ to n^{th}

μ =   Error term

The empirical model was specified as:

$$LOG_e (Y) = \beta_o + \beta_1 AGEHH + \beta_2 GERE + \beta_3 EDURE + \beta_4 EXPRE + \beta_5 CHCON + \beta_6 MPPGP + \beta_7 MINFO + \mu \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots (6)$$

Where,

AGEHH = *Age of the House holdhead (in years)*

GERE = *Gender of the respondents expressed as dummy variable, 1=Male, 0= Otherwise*

EDURE[1] = *Education of the household heads measured in numbers of years spent in school*

EXPRE[2] = *Is a continuous variable measured in years households had spent in chicken production.*

MINFO = *Availability of market information expressed as dummy variable (where respondents with no access to market information scored as "0" and "1" otherwise).*

FAMSIZE[3] = *Family size is a continuous variable measured as the total number of individual within the household's compound.*

COSPROD = *It is a continuous variable measured as total cost of production incurred to carry all operation in the chicken production. It was*

µ = *Error term expected that the higher the cost of production the less the influence toward participation and vice versa.*

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[1]

Is a dummy variable taking value of 1 if households have formal education and 0 for otherwise informal education. Previous findings had revealed that having formal education enabled households with abilities to access important knowledge of modern technology and information necessary for productivity improvement. Nguyen et al, (2011) reported that formal education was found to be significant to farmers in making decision toward groups participation in agriculture thus resulted to earn high profit from agriculture produces.

[2] Keepers were normally found to have well built knowledge and ability to overcome challenges resulting from agriculture production. It was expected that experience would have positive result toward household participation in exotic chicken production. Nguyen *et al*, (2011) also concluded that years of schooling and experience have had positive impact in chicken production in Vietnam.

[3] The researcher expected this variable to have positive impact because as number of family member increase would increase household labour availability and also dependants to household head thus influencing one to opt for a more productive investment.

CHAPTER FOUR

4.0   RESULTS AND DISCUSSION

4.1   Socio-Economic Characteristics of Respondents

4.1.1   Sex of the household head

Socio-economic characteristics have been considered to be critical and essential elements in understanding behavior and attitude in decision making regarding to probable responses to many stimuli exposed to it (Akyoo, 2004). Among the three wards under study, male-headed households constituted larger percentage than female-headed households both within and across wards. Moreover, findings indicate that distribution of male headed households were high in households rearing exotic poultry breed (broilers chicken) than female households in the same enterprise (Table 2). These findings were expected as traditionally in most African countries many families are headed by males (Kaaria *et al.*, 2007).

Among the households keeping exotic chicken across the three wards, male-headed households in Mlandizi Ward was 93% compared to the rest of the two wards, while the lowest ward was Kilangalanga ward with 57% male-headed households. On contrary to the reported findings, with local chickens both within and across wards, households headed by female were few compared to their counterpart males. Kilangalanga ward had the highest percentage (83%) followed by Kwala ward (82%).

Meanwhile, among the female-headed households keeping chicken within and across the wards, Mlandizi Ward had the highest number (25%) of female headed households rearing local chicken compared to the other wards. Overall findings shows that regarding the two

chicken breed kept in the study area, male-headed households dominated local chicken breed by 80% while female-headed households dominated in the exotic chicken breed by (21%).

Table 2: Distribution of respondents by sex and type of chicken breed

Sex of respondents	Mlandizi (n=30)		Kilangalanga(n=30)		Kwala (n=30)		Overall (n=90)	
	Local chicken	Exotic chicken	Local chicken	Exotic chicken	Local chicken	Exotic chicken	Local chicken	Exotic chicken
				Percentage of respondents				
Male	75.0	93.0	83.0	57.0	82.0	87.0	80	79
Female	25.0	7.0	17.0	43.0	18.0	13.0	20	21
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

4.1.2 Chicken ownership

For ages, males have been the decision makers in many African families, owners of the family economic resources and decision makers when it comes to investments or enterprises held at the household level (Gebregziabher, 2010). Other family members (wives and children) are involved only to implement decisions from the household-head (male) and mostly when the issue of family labour is required. Contrary to this, in some households though males are the decision makers they however, share their views with the rest of family members before decision is made (Muthuya, 2010).

Table 3: Distribution of respondents by sex and chicken breed ownership

Sex of respondents	Mlandizi (n=30)		Kilangalanga (n=30)		Kwala (n=30)		Overall (n=90)	
	Local chicken	Exotic chicken	Local chicken	Exotic chicken	Local chicken	Exotic chicken	Local chicken	Exotic chicken
				Percentage of respondents				
Male	43.7	64.3	30.4	14.3	40.9	25.0	38.33	34.53
Female	56.3	35.7	69.6	85.7	59.1	75.0	61.67	65.47
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

The findings (Table 3) show that, in the study area chicken ownership varies with chicken breeds both within and between wards. Starting with local chicken ownership in the study area, in Mlandizi ward females' ownership dominate by (56.3%) as against 43.7% males' ownership, and (59.1%) as against 40.9% males' ownership in Kwala ward. However, across wards, in Kilangalanga ward female ownership was higher (69.6%) when compared to the other two wards.

Contrary to local chicken ownership which was dominated by female within and across wards, exotic chicken ownership was dominated by males only in Mlandizi Ward where (64.3%) of total exotic chicken owned as against 35.7% female ownership. However, the rest of the two wards are still dominated by female (Kilangalanga ward 85.7% and Kwala ward 65.47%) both within and across wards. Generally, chicken enterprise ownership in the study area is reported to be dominated by females (61.67% local chicken and 65.47% exotic chicken) than males (38.33 local and 34.53 exotic chicken). This was compelled by the fact that, chicken keeping is mostly done only for subsistence. Meanwhile, males were engaged in other payable and profitable activities. These findings are similar to Gebregziabher (2010) who reported that in Ethiopia normally men participate only in investment with quick returns while chicken business is always left for women and children at home.

4.1.3 Marital status of the household head

The findings show that, in the study area there are married, single, and divorced respondents. However, majority of the respondents within and across wards were married compared to single and divorce respondents (Table 4). The findings show that, in the study area married couples owning local chicken were 55% as against 42% of exotic chicken.

This implies that marital status may induce someone to demand and consume hence more responsibilities. In addition, it reflects that the societies are stable as it was commented (Msami, 2007) has implication on social organization and economic activities such as agriculture and resource management.

Table 4:   Distribution of chicken breed ownership by marital status

Marital status of the respondents	Mlandizi		Kilangalanga		Kwala		Overall (n=90)	
	Local chicken (n=16)	Exotic chicken(n =14)	Local chicken (n=23)	Exotic chicken (n=7)	Local chicken (n=22)	Exotice n (n=8)	Local chick	Exotic chick
			Percentages of respondent					
Married	50.0	91.0	74.0	10.0	41.0	25.0	55.00	42.00
single	44.0	7.0	26.0	86.0	55.0	63.0	41.00	52.00
Divorced	6.0	2.0	0.0	4.0	4.0	12.0	3.30	6.00
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

4.1.4   Age of respondents

Table 5 summarizes the respondents' age distribution in the study area. It was noticed that majority of respondents were between 26 years-45 years. The reported distribution implies that the majority of the respondents are in their youthful and active stage of life.

Table 5:   Age distribution of respondents by ownership by chicken breeds

Age of respondent	Mlandizi(n= 30)		Kilangalanga(n= 30)		Kwala(n= 30)		Overall (n= 90)	
	Local chicken	Exotic chicken	Local chicken	Exotic	Local chicken	Exotic chicken	Local chicken	Exotic chicken
			Percentages of respondents ages					
16-25	6	0	20	29	27	12	17.67	13.67
26-35	31	36	16	43	32	38	26.00	39.00
36-45	25	36	40	29	32	50	32.33	38.33
Above 45	38	28	24	0	9	0	23.67	9.30
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

This is the category which engages in family economic activities. Similar finding was reported by Kajembe and Mwihomeke (2001) in Tanga region, that the age between 18-55

years is considered to be an active and productive group and thus involved in many development activities.

4.1.5 Education level and experience of the respondents

4.1.5.1 Education level of the respondents

From the two chicken value chains in the study area, distribution of education shows that at least all respondents interviewed had attained primary education and above regardless of which value chain respondents are involved. The implications of this is that majority of the participants in the local and exotic value chains have ability to articulate production trainings, search for production and marketing information, as well as ability to access knowledge from various sources regarding poultry production and management. Similar findings were reported by Kisungwe (2012), that education provided to poultry keepers in Shinyanga region in Tanzania enabled keepers to increase chicken's growth and productivity through seeking difference but updated knowledge concerning poultry production and marketing.

Table 6: Ownership of chicken by breed type and education level of respondents

Education level of respondents	Mlandizi (n= 30)		Kilangalanga(n=30)		Kwala (n= 30)		Overall (n=90)	
	Local chicken	Exotic chicken	Local chicken	Exotic chicken	Local chicken	Exotic chicken	Local chicken	Exotic chicken
			Percentage of respondents (%)					
Primary education	88	50	65	71	77	63	76.00	61.33
Secondary education	12	36	30	29	14	25	18.67	30.00
Post secondary education	0	14	5	0	9	12	4.97	8.67
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

However, there was a clear difference between levels of education within the two poultry values chain in the study area. Increase in education from low level to another was not

found to have a greater impact on poultry production. The findings here show that, in both value chains majority of the respondents had primary education followed by secondary level. Table 6 shows that majority of local chicken keepers (i.e 80%, 65% and 77%) in Mlandizi, Kilangalanga, and Kwala Ward respectively had attended primary level of education. The findings further show that, majority of respondents rearing exotic chicken within and across ward have secondary education (i.e. 36%, 29%, and 25%) in the respective three wards of Mlandizi, Kilangalanga, and Kwala. This implies that, keeping exotic chicken requires someone to have relative school knowledge as exotic breed requires advanced rearing management.

4.1.5.2 Household experience on poultry keeping

Experience is the time spent by household in keeping chicken in the study area. It is obvious that the more experience households have in poultry keeping brings awareness, knowledge and ability to tackle industry's challenges. These include seasonal adverse diseases, marketing and general poultry managements. Table 7 shows distribution of respondents by level of experience in chicken rearing by breed type.

From among of the interviewed households, experience in chicken rearing ranged from 1 year to over 8 years for both local and exotic chicken keepers. Out of these, local chicken keepers were found to be more experienced (from 6 years and above) in comparison with exotic chicken farmers. Generally, local chicken keepers have more experience of 46 % and 27% (from 6 to 8 years and above) respectively because they are indigenous birds that almost every family keeps for subsistence or commercial reasons.

Table 7: Distribution of respondents by poultry keeping experiences

Chicken rearing experiences (Years)	Mlandizi (n=30)		Kilangalanga (n=30)		Kwala(n=30)		Overall (n=90)	
	Local chicken Percent	Exotic chicken Percent	Local chicken Percent	Exotic chicken Percent	Local chicken Percent	Exotic chicken Percent	Local chicken	Exotic chicken
	Percentages of respondents (%)							
0-2	0	22	4	29	0	62	1.33	37.67
3-5	6	64	22	57	27	38	18.33	59.67
6-8	25	7	39	14	46	0	36.67	7.00
Above 8	69	7	35	0	27	0	43.67	2.33
Total	**100**	**100**	**100**	**100**	**100**	**100**	**100.0**	**100.0**

4.1.6 Occupation of the respondents

Table 8 summarizes distribution of respondents' main occupation with respect to the two chicken breeds kept in the three wards (Mlandizi, Kilangalanga and Kwala). The respondents are engaged in various occupations ranging from farming (livestock and crops), salary work (employed) to self-employed activities such as carpentry work, building constructions as well as small businesses (Table 8).

Table 8: Distribution of respondents by main occupation

Respondents' occupation	Ward name							
	Mlandizi (n=30)		Kilangalanga(n=30)		Kwala(n=30)		Overall (n=90)	
	Local	Exotic	Local	Exotic	Local	Exotic	Local	Exotic
	Percentages of respondents (%)							
Farming (livestock and crops)	31	14	35	14	55	13	40.33	13.66
Salary (employed)	25	64	39	29	0	50	21.33	47.67
Self employed (out of agriculture)	44	22	26	57	45	37	38.33	38.67
Total	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

It was further noted that, there was a difference between occupation type and chicken breed kept by farmers both within and between wards in the study area. The results show that, respondents engaged in farming had a higher mean percentage (40.33 %) for keeping

local chicken as compared to exotic chicken keepers (13.66%). There is a slight difference in participation in chicken farming by those doing self employments with respect to type of chicken breeds compared to other main occupations. However, respondents with salaried jobs in Mlandizi ward have a high percentage (64%) of involvement in exotic chicken keeping compared to other two wards. Likewise, 55% of those doing farming in Kwala ward were reported to keep local chicken (Table 8).

From the findings in Table 8, it is seen that none of either local or exotic chicken keepers were specialized in keeping chicken alone. This is because chicken production in most of the household is taken as secondary means of earning income to sustain their living. Similar findings were reported by Kabuje (2008) in Tanzania that most families that keep livestock do also carry out other economic activities such as small scale trading and formal employments to supplement their incomes.

4.2   Characterization of Local and Exotic Chicken Value Chains in Kibaha District

Findings disclose that, both local and exotic chicken reach market weights at difference ages. Local chicken was found to attain recommended weight of up to 1.8 kg from 16 weeks meanwhile exotic chicken at the same environment attain market weight in 5 weeks. This brings the first difference between the two poultry value chains. Besides, through discussion with the key stakeholders it was reported that like any other rural and peri-urban areas of Tanzania majority of the poultry keepers regardless of breed they own strive to sell their chicken (Live chicken) as early as possible without adding any value, which could enable to fetch a higher premium prices.

However, value addition practices along poultry value chain include dressing/ processing, packaging, and storage which require advanced knowledge. Moreover, in Tanzania apart

from small scale processing done at household level, restaurants/and or hotels, only few companies have managed to add value along poultry products including: Interchick poultry company (Dar es Salaam), Mkuza chick company (Coast Region), and Euro-Poultry Company by processing and packing chicken products. Other agricultural products such as cassava, maize, potatoes varieties, and even banana unlike chicken can simply be processed into various products such as pellets and flour, then stored after subjecting to sun drying (Msuya, and Mmasa, 2012; Sewando, 2012). Apart from what is performed at household level, local poultry keepers could not make value addition like packing into various portions like wings, gizzards, and/ or thigh that can fetch high prices in the market with exceptions of the Mkuza Poultry Farm located in Kwala Ward.

4.2.1 Mapping of Local and Exotic Chicken Value Chain in Kibaha

4.2.1.1 Actors of local chicken value chain in Kibaha District

In the study area, local chicken value chain comprises a series of actors shown in Figure 2. These actors include input suppliers, keepers, retailers, aggregators/assemblers, wholesalers, and consumers. Actors interact at various stages from production up to the end users in Kibaha district. Some of the reported services like public goods and chicken housing constructions take place before production processes commence. Figure 2 shows a range of activities performed by actors of the local chicken value chain in Kibaha district. The nodes are shown interconnected by different arrows on the map showing actors like: input suppliers, keepers, retailers, assemblers, wholesalers, and consumers, and supports services such as financial services as well as extension services. Each actor category is discussed in detail.

(i)   Chicken Keepers/Farmers

Poultry keepers were found to be multifunctional; as they raised chicken, process chicken at household level, and also sell chicken to traders and or local farmers for consumption. On the other hand, they buy live chickens from fellow keepers and traders for both consumption and stock replacement. Local chicken keepers are classified into three categories. First group are the keepers owning up to 15 chickens per year, these are those practicing extensive system or the free range system of poultry farming.
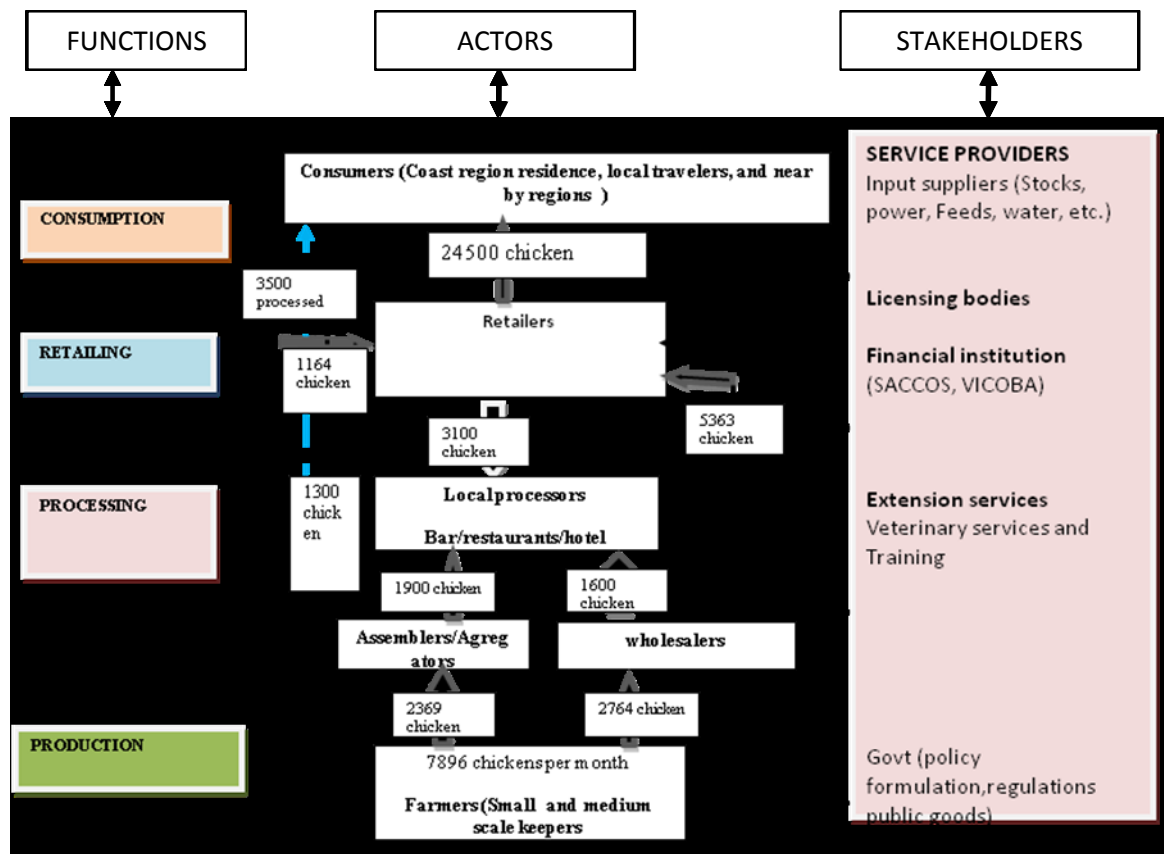
Figure 2: Local chicken value chain map in Kibaha District

Key

Flows of live chicken
Flow of processed chicken
Flow of services

This group raises chicken not for commercial purpose and seldom sells to neighbors or rural aggregators. Keepers are not liable to any management practices as birds do scavenges around looking food and water. Moreover, the system is now shrinking as a result of by-laws restricting the free range keeping system, increased land pressure following increased population and also increased oversight on recommended management practices from government extension officers. From these findings, the extensive system is employed by the local chicken keepers only, and none of the exotic chicken keepers were found using this system.

The second group was the semi-intensive (backyard system) with more than 15 birds and up to 100 birds per year. Birds are left free around owners' premises during the day time and are confined in sheds and supplemented with feeds, drugs and water in the evening. The last group is the emerging semi-commercial local chicken keepers with over 100 chickens per batch. Chicken are totally confined in well built houses. These are found mostly in Mlandizi urban area, characterized by a well organized market, and some enterprise management operations are vertically integrated (with well established millers and hatcheries). The system is different from the rest because it requires well organized relationship with other actors such as marketing agents, service providers such as extension officers, veterinary agents for drugs provisions, and or compounded feeds agents so as to meet market requirements.

(ii)   Rural small traders

These are vendors situated along the villages; they buy live chicken from keepers but in small numbers. Most of them are men aged between 20 to 35 years who are capital starved with no permanent buyers as they sometimes sell birds to consumers, retailers and wholesalers in the local markets of Mlandizi and Kwala.

In the study area there are no specialized traders for local chicken only as they deal with both chicken breed types depending on availability. Only five traders were met for discussion three from Mlandizi ward and two traders from Kilangalanga ward and none from Kwala ward. They normally buy chicken from keepers at farm gate prices and sell to other traders/aggregators or consumers at relatively higher prices. The means for transporting chicken from rural areas are bicycles and hired motorbikes. This implies they do not have permanent/sophisticated means of transport for chicken to and from the marketing points. Some of these mall traders are normally seen along rural and urban main roads holding chicken in small portable cages, hands and tengas inviting prospective buyers.

(iii)   Rural aggregators

These are traders residing either permanently or temporarily in rural areas, and their main roles are to collect and sell chicken to wholesalers. They purchase chicken from small scale farmers at farm gate price and re-sell again to larger traders, wholesalers and sometimes to retailers in the same market. Normally, they buy chicken directly farmers' compounds at farm gate price and thereafter resell to either retailers or wholesalers at relative higher price.

 (iv)   Wholesalers

 These purchase chicken from many aggregators, and sometimes make direct contacts with local chicken farmers and buy in bulky. Chicken are transported to Kibaha and Dar es Salaam bulking markets. Upon reaching the markets, chickens are sold either directly to consumers or to retailers. Also, sometimes agents are appointed by wholesalers to market chickens in the same market. Some of traders in this group make business relationship

with some high profile hotels in regional cities to supply chicken at relatively good price up to Tshs 20 000 per mature local chicken.

(v)   Retailers

These are very important actors of the local chicken value chain in the region. They are perceived to take a very large stake of profit amongst the other actors along the chain. They obtain birds from keepers, rural aggregators, and wholesalers and sell them to consumers. In most cases, they are believed to receive high or margins compared to other traders in the overall market chain. In the study area, retailers buys local chicken at average price of Tshs 8 000 and sell at average price of Tshs 15 000 per mature chicken.

(vii)   Consumers

Consumers form groups referred to as the end users of the chicken kept by keepers/farmers. The group is spread all over Kibaha. Keepers and traders always act according to the demand specifications from this group. Consumers receive chicken from various channels and at various forms like: live chicken or processed one. Among the ten surveyed consumers in the study area, 8 of them pointed out that prices and chicken availability are the key factors for their selection preferences. This means that consumers in the study area have no permanent choice for the type of poultry breed to buy, and are conscious to both price and product availability. Local chicken after being processed are eaten either alone or mixed with other complement cooked rice, chips (roasted sliced cassava) e.t.c. It is normal to hear consumers asking for chicken soup in restaurants at the hotels/restaurants. Chicken meat is normally roasted or boiled and eaten with other complements such as rice, chips, ugali and others more.

4.2.1.2   Actors and stakeholders of exotic value chain

In the study area, exotic chicken value chain comprise of different actors as shown in figure 3. The actors perform different activities from production points to consumption points including keepers, retailers, wholesalers, and consumers.

(i)   Poultry keepers

Exotic chicken keepers are found to be multifunctional: as they raise chicken, process chicken at household level and also sell chicken to traders and/ or local farmers for consumption. On the other hand, they buy chicken from fellow farmers/or chicks supplier companies and traders for both consumption and stock replacement. Keepers in this value chain integrate well with other actors such as feed manufactures, chicks companies, traders /marketing argent, veterinary agents and extension officer than is done by local chicken keepers. Chicken are intensively kept thus require high running capital and management commitments all the time. Keepers normally raise from 100 chicken per batch.

(ii)   Wholesalers

These purchase chicken from many traders and sometimes make direct contacts with exotic chicken farmers. Chicken are transported to Kibaha and Dar es Salaam bulking markets as is done for local chicken too. Upon reaching the markets, chicken are sold either directly to consumers or to retailers in bulk. Farmers in this value chain have strong relationships with traders (institutions like hotels, restaurants, and schools) within and outside coast region.
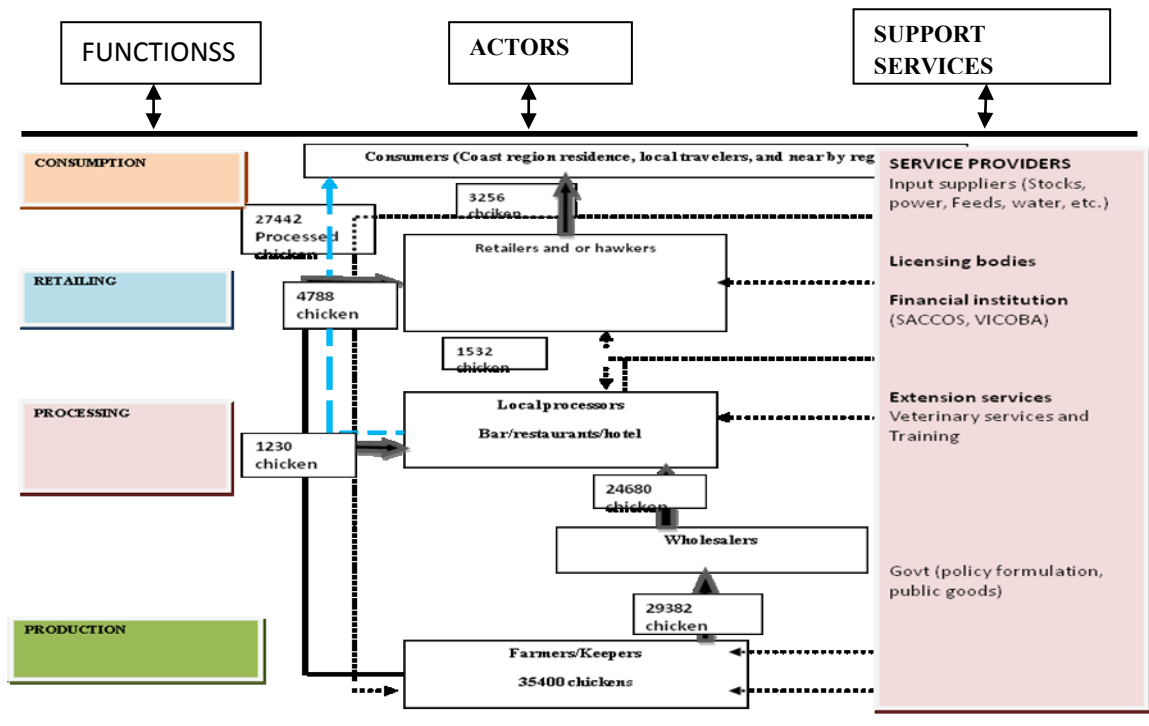
Figure 3: Exotic chicken value chain map in Kibaha district

Key

Flow s of live chicken
.... Flow of processed chicken
...... Flow of services

(iii)   Retailers

These are very important actors of the local chicken value chain in the Coast Region. They are perceived to take a very large stake of profit amongst the other actors along the chain. They obtain birds from keepers, aggregators, and wholesalers and sell them to consumers. Retailing in the case of exotic chicken is not well observed as is the case for local chicken. It is uncommon to find hawkers and other small traders roaming around streets, roads and village markets selling exotic chicken. It is only in the regional markets like Kibaha centre market where exotic chicken were found during holidays otherwise sold direct to institutions (schools and prison camps), restaurants and high profile hotels within and outside Kibaha District.

(vii) Consumers

Consumers make the groups referred to as the end user of the chicken. The group is spread all over Kibaha; keepers and traders always act according to the demand specifications from this group. Consumers receive chicken from various channels. Consumers in the study area have no permanent choices for the type of poultry breed to buy, and are conscious to both price and product availability.

4.2.1.3 Service providers to the poultry value chains

4.2.1.3.1 Inputs suppliers

There are several inputs for both local and exotic chicken like replacement chicks, Day Old Chick (DOC), pullets, cockreals, feeds and veterinary drugs. Exotic chicken keepers source replacement chicks from established commercial companies (Ruvu JKT Poultry Farm, Mkuza Chicks Farm, and Kibaha Education Centre) located in Kibaha district. Keepers obtain chicks from chick supplier companies by prior order, and payment terms are either cash or credit. Farmers and especially exotic chicken keepers are linked both vertically and horizontally with input suppliers in the study area, but with local chicken enterprise horizontal integrations is done by their organizations. Most of local chicken keepers obtain replacement stocks as well as local feeds from their fellow farmers and/ or neighbors while other obtains from commercial chicks supplier companies.

Other chick's supplier companies include Interchick Poultry Company and Euro Poultry. Sometimes DOCs are imported from Ken-chick Company from Kenya. DOCs are sold directly from Company office or through agents situated at various places in Dar es Salaam and up-countries regions. Out of these companies it is only Ruvu JKT Poultry Farm that produces local DOC, pullets and cockreals commercially apart from few individual keepers who produce local chicks from their small hatcheries.

For the local chicken, apart from the traditional habit of utilizing locally available feed materials, compounded feeds are used for supplementations as well. Sometimes, exotic chicken farmers and those who keep local chicken commercially source commercial compounded feeds from feed agents while others makes arrangement with feed manufacturer. From these arrangements farmers are able to buy feeds by cash or credits and/ or installments terms. Some of the farmers have managed to prepare feeds at their farms by mixing different ingredients purchased from suppliers.

Table 9 shows that, local chicken replacement stocks were obtained from various sources including own farms, commercial farms, and from neighbors' farms. For a case of own farm, it is reported that about, 21% and 8% of local chicken stocks in Kilangalanga and Kwala Wards respectively obtained from own farm. Furthermore, majority of farmers in Mlandizi ward (90%) obtained local chicken replacement stock from Ruvu JKT Poultry farm. However, about 74% and 82% local chicken keepers still depend on their neighbors' farm as a source of replacement stock. As opposed to local chicken, exotic chicken farmers obtain their replacement stocks only from one single supplier (i.e. from established commercial poultry farms available in Kibaha district) Table 9.

Table 9: Sources of chicken stock in Kibaha district

Source of stock	Mlandizi (n=30) Local chicken	Exotic chicken	Kilangalanga(n=30) Local chicken	Exotic	Kwala(n=30) Local chicken	Exotic chicken	Overall (n=90) Local chicen	Exotic chicken
			Percentages of respondents (%)					
From own farm	0	0	21	0	8	0	10	0
Commercial farm	90	100	5	100	10	100	35	100
Relative	10	0	74	0	82	0	55	0
Total	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

Generally, findings show that the major sources for local chicks replacement stock in Kibaha district are commercial established poultry farm (35%) and neighbors/relative (55%) while (100%) exotic chicks obtained from commercial poultry farm.

4.2.1.3.2 Support services to chicken keepers in Kibaha District

Support services in local chicken value chain include input supply, extension services, financial services and business services. Currently, respondents reported that due to poor linkages among other chain actors, availability and access to both support services as well as business development services such as financial services are inaccessible. Table 10 shows that there are greater variations between financial services availability, sources and forms at which they are given across the two chicken value chains.

Table 10: Financial services to chicken farmers in Kibaha district

Financial service availability	Mlandizi (n=30)		Kilangalanga (n=30)		Kwala(n=30)		Overall (n=90)	
	Local chicken Percent	Exotic Percent	Local chicken Percent	Exotic Percent	Local chicken Percent	Exotic Percent	Local chicken	Exotic chicken
Percentage of respondents (%)								
Yes	68	86	2	50	11	29	27	55
No	32	14	98	50	89	71	73	45
Total	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**
Sources								
SACCOS	50	29	40	50	60	0	50	26
Bank	50	71	47	50	40	100	46	74
Traders	0	0	13		0	0	4	0.0
Total	100	100	100	100	100	100	100	100
Credit Forms								
Cash	100	27	72	20	0	46	57	16
Other forms	0	73	28	80	100	54	43	84
Total	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

For the case of local chicken the findings show that, credits demand was higher in the study area for both poultry breed under study. Comparing the three wards Kilangalanga has the lowest percentage of individuals rearing local chicken (2%) who could access financial services (Table 10). However, local chicken keepers in Mlandizi indicated that

they could access financial support than any other wards (about 68%). The reason behind is that in Mlandizi most of the financial services like SACCOS and traders are located within Mlandizi township, thus it is easier for keepers to obtain loans informs of cash.

However, exotic chicken farmers in the study area reported to obtain financial supports inform of cash and non-cash from various sources like SACCOS, traders, and relative within Kibaha district. Accessibility to these supports was dominated by keepers from Mlandizi wards for the same reasons reported for local chicken keepers. It was reported that about 86% of the exotic chicken farmers in Mlandizi ward have access to the available credits services. In addition, some of the respondents reported that lack of information and collaterals were the bottlenecks for obtaining financial support from the available institutions. Generally, financial services in Kibaha district are not well organized to help chicken actors with adequate cash to carry their investments. It is reported that, only (11%) of local and (29%) exotic chicken keepers have access to financial services inform of cash and other form. It is also reported that, majority of financial service sources are (60%) SACCOS for local and (100%) banks for exotic chicken actors Table 10.

4.2.2 Local and exotic chicken marketing channels

Marketing channels analysis helps to discover the existing series of intermediaries together with the linkages which indicate how chicken and chicken's products flow from production point or one market to another market or end users. Through survey in the study area, different market channels were identified including keepers, retailers, wholesalers, aggregators, and consumers. Figures 4 and 5 shows how chicken transferred along the existing market channels in the study area.

4.2.2.1 Local chicken marketing channels

From the findings, local chicken value chain is reported to have a very long marketing channel as compared to exotic chicken channels (Figure 4). The longer the channel the higher the prices offered by the consumers to obtain chicken in the market. In addition to that, retailers, restaurants and hotels claimed that high purchasing cost from poultry brokers and aggregators contributes positively to higher selling price. These findings go in line with Zeberga (2010) and RLDC (2010) who reported that due to long channels and interlinked local chicken's channels in Africa, its availability to consumers has become scarce and or higher cost compared to broiler chicken. Furthermore, it was found that there were about five poultry marketing channels in the study area as follows:

4.2.2.1.1 Local chicken marketing channels

I. Producer ⟶ local aggregators ⟶ Wholesalers ⟶ retailers ⟶ consumers

II. Keepers ⟶ local aggregators ⟶ wholesalers ⟶ consumers

III. Producer ⟶ wholesalers ⟶ retailers ⟶ consumer

IV. Keepers ⟶ retailer ⟶ consumers

V. Producer ⟶ consumer
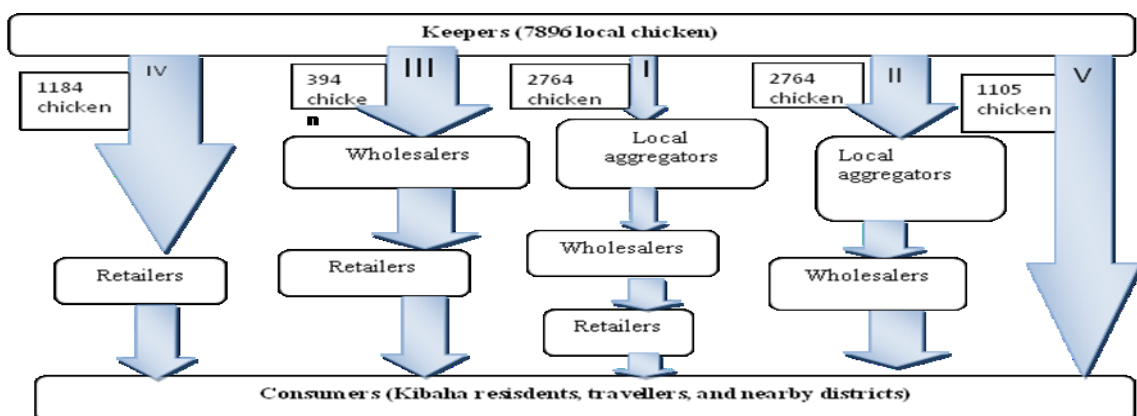
Figure 4: Local chicken marketing channels in Kibaha district

4.2.2.2 Marketing channel of exotic chicken

Exotic chicken value chain in the study area comprises of a series of actors taking part from production to consumption points (Figure 5). Exotic chicken value chain looks almost similar to the local chicken value chain in the study area in terms of actors and their participation with exception of the absence of brokers, hawkers, local and urban aggregators in the exotic chicken value chain. The findings show that, no aggregators at any points of marketing process as compared to local chicken value chain. The absence of some actors makes the chain shorter as compared to local chicken value chain. The successive exotic chicken marketing channels (I, II, III, and IV) are shown below indicating the movement of chicken from keeper to successive actors to the final end:

4.2.2.2.1 Exotic chicken marketing channels

I. Keepers ⟶ wholesalers ⟶ retailers ⟶ consumers

II. Keepers ⟶ wholesaler ⟶ consumers

III. Keepers ⟶ retailers ⟶ consumers

IV. Producer ⟶ consumers
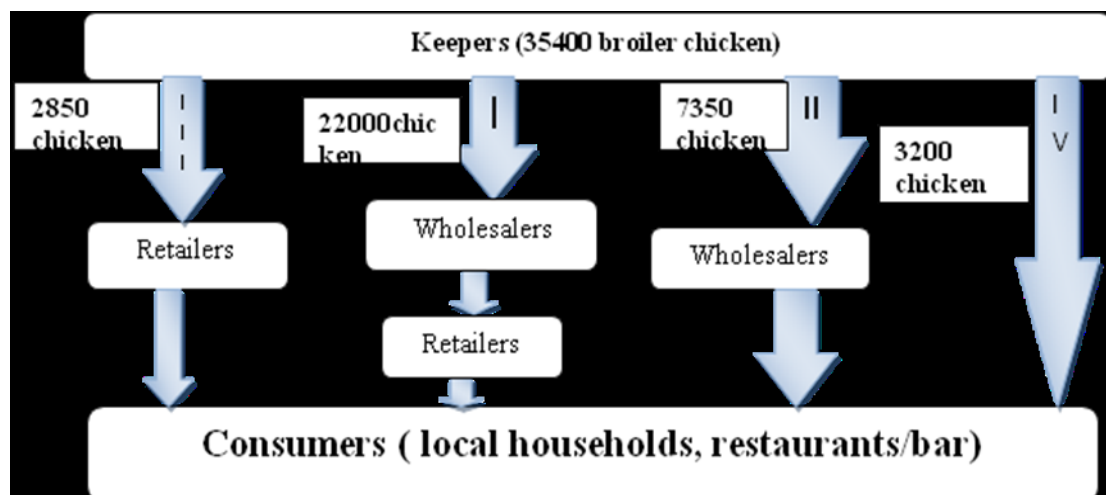
Figure 5: Exotic chicken marketing channels in Kibaha districts

4.3   Governance Structures in the Poultry Value Chains in Kibaha District

Governance along the two poultry value chains aimed at showing how actors' operations coordinate to meet the competitive market demand of the poultry subsector. Governance analysis was done by looking at how different activities along the two value chain were conducted, and whether there are any associations controlling rules, and/ or standards.

Also, descriptions of whether rules and standards were officially or not-officially formed, controlled and possibly who does monitoring and the effects of these governance structures to actors. In addition, through the existing relationships, the researcher had to investigate on who is involved in decision making regarding transactions, and price control during products exchange.

4.3.1   Price setting

Data analysis indicates that, price setting for both value chains was ordinarily influenced by traders alone. Through discussions with the respondents from the study area, it was revealed that local chicken prices at various nodes of the chain are dictated by buyers only. Poultry keepers have less chance to negotiate prices implying that they are price takers. In relation to exotic chicken value chain participants, it was reported that about 50% of the chicken keepers in Mlandizi Ward (Table 11) managed to negotiate with traders and sometimes have their way to set price. There was no active farmers' organization to help farmers on price setting and or carrying out negotiations. The absence of these organizations causes farmers to miss out on the up-to-date marketing information regarding to production, demand and supply, prices, and availability of markets.

4.3.2   Chicken standards

Table 11 shows that, in supplying local market, chicken keepers are required to meet the following some standard requirements on critical volume (number of chicken brought in the supply chain), body sizes (specific size and weight of chicken), and timings (exact time to reach market targeted weight, size, and required volume). Among these standards, supply volume was highly observed by traders in the three wards. It was reported that, the larger the volume the easier the availability of market and hence possibility of getting premium price. Traders claim that they incurred high transport cost as a result of searching for chicken across villages due to poor infrastructures including, unstable mobile networks which could have been an easiest way to communicate between traders and keepers . Likewise, keepers claim that failure to meet standards is caused by lack of information regarding to these standards which are imposed by traders.

4.3.3   Decision making along the poultry value chains

In the study area, activities regarding to chicken raising are basically left to women and children in most cases. The reason behind is that women and children normally spend most of their time at home than men. Disparity between these groups comes during chicken selling. Women in most cases have no decision to sell chicken without consulting their men. Not only decision to sell but also distribution on income resulting from chicken sold. Men are the main decision makers and women are given only a small portion to care for family while men remain with a larger stake. This implies that women in these wards are still left behind in terms of income distribution. Table 11 indicate that, in all the three wards and even to the two poultry breeds many decisions were above 60% controlled by men. Whereas women are discriminated by below 50% in terms of decision making as is shown in the same table regarding to both poultry breeds.

4.3.4   Contractual arrangements

Actors and other stakeholders reported to have weak contractual relationship in all stages of the value chain. Only a few chicken keepers (about 94% local chicken and 53% exotic chicken keepers) from Kwala Ward (Table 11) reported to have formal relationship with Mkuza poultry farm. Farmers receive support like feeds, replacement stocks, and extension services from Mkuza farm. Though farmers keep chicken independently at their home, they finally sell chicken to Mkuza poultry farm for further processing and finally taken to the market. On top of that they have their own keepers' organizations known as *Jitume Group* and *Jitegemee Group* which always act on their behalf. These groups help farmers in price setting and negotiating with traders, and also provision of up to date market information.

Table 11:   Governance structures in the local and exotic chicken value chains

variable	Mlandizi (n=30)		Kilangalanga (n=30)		Kwala (n=30)	
	Local chic Percent	Exotic Percent	Local chicken Percent	Exotic Percent	Local chicken Percent	Exotic Percent
Price setting						
Traders	90	50	76	81	96	40
keepers	10	50	20	19	3	15
Govt institution	0	0	0	0	0	0
Keepers organizations	0	0	4	0	1	15
Total	**100.0**	**1000.0**	**100.0**	**100.0**	**100.0**	**100.0**
Standards						
volumes	61	58	70	90	87	92
Size	15	5	19	9	13	15
Time	24	37	11	1	0	3
Total	**100**	**100**	**100**	**100**	**100**	**100**
Decision making						
Men	72	55	84	66	70	56
women	28	45	16	34	30	44
Total	**100**	**100**	**100**	**100**	**100**	**100**
Contractual arrangement						
Yes	19	92	21	7	94	53
No	81	8	79	93	6	47
Total	**100**	**100**	**100**	**100**	**100**	**100**

Contrary to that, in the other two wards (Mlandizi and Kilangalanga) farmers reported not to have a working relationship with other stakeholders as in Kwala Ward. Some keepers contend that, they do not see the benefits of forming and working in groups as only few members receive benefits than the majority.

It implies that majority of value chain actors are conducting their activities independently. Moreover, there is a number of keepers' organization (Mlandizi Farmer Groups, Jiendeleze Group, and Dosa Jogoo Society) formed to boost poultry production but to date they are not active. Some of these organizations were formed by donors like Jiendeleze Group and Dosa Jogoo Group with the aim of distributing Cockreals to local farmers in the villages. After cessation of the specific projects, local keepers failed to sustain the groups in the absence of donors.

4.4 Assessment of Gross Margins among Actor Categories in the Local and Exotic Chicken Value Chains

4. 4.1 Assessment of costs and gross margins of actor categories

Rearing chicken involved a variety of cost components incurred during production and marketing. Costs involved in the chicken production were incurred on (feeds, labor, housing, replacement stocks, veterinary drugs and marketing e.t.c).

4.4.1.1 Gross margin for local chicken farmers

Gross margin is calculated at various market channels for local and exotic chicken breeds shows that, consumers are paying higher price to obtain chicken compared to other chain actors. Only consumers who receive chicken directly from chicken keepers at farm gate prices had relative price relief. Chicken price differ by Tshs 5000 between consumers receiving chicken from the same farmer. Thus, local chicken consumers interviewed by

the researcher in urban area reported that they are paying between Tshs 13 000 - Tshs 18 000 per mature chicken while the same chicken would have been sold between Tshs 8000 - Tshs 12 000 in the rural areas.

Local chicken farmers in the study area revealed that, among major production costs items are related to chicken stock, feeds and drugs, labor (both family and or hired) and utilities. These costs are used in GM analysis for local chicken keepers. According to Table 12 a farmer with 100 local chickens per batch is able to receive GM of up to Tshs 671 390 or (54%) in sixteen weeks. The average per unit price of local chicken is found to be Tshs 12 458 which is far better compared to average per unit price of exotic chicken of Tshs 6535.

Table 12:   Cost structure and Gross margin of 100 local chicken batch

Cost/revenue items per 100 chicken	Amount in Tshs
Variable costs	
Stock cost	349 808
Feed cost	110 580
Electric power	18 630
Kerosene cost	8 649
Drugs cost	2 600
Brood materials cost	3 210
Water bill	14 284
Labor cost	
Watering cost	6 935
Brooding cost	10 538
vaccination cost	9 298
Drugs administration cost	13 179
Total Revenue	1 245 800
Gross Margin per batch	**0.54**
Gross Margin per year	**0.72**

Data analysis also shows that among production costs, stock replacement cost was higher than the costs for other components because not all farmers bought Day Old Chicks (DOCs) each at Tshs 1500 per chick rather, a remarkable number of farmers purchase pullets and cockreals of 3 weeks to 4 weeks of age at an average price of Tshs 4500. Farmers stipulated that they were getting problems in rearing DOCs due to brooding errors resulting to more chick losses. Regardless of the mentioned broodiness problem, going for DOCs is still the best option for farmers in the study area as availability cockerels and pullets is difficult. It was possible to have three batches of 100 local chicken per year, and thus would results to a Gross margin of Tshs 2 014 170 per annum or 75% (Table 12). The reason behind is, local chicken are known for their slow growth rates as a result of genetic makeup.

However, under outstanding management of both capital and inputs are able to reach acceptable market weight in 16 weeks. This finding is in line with Awol (2010) who reported that village chicken in Ethiopia could reach market earlier when good management and necessary requirements are taken on board.

4.4.2.1 Gross margins for traders of local chicken

From price, cost and GM analysis, GM for wholesalers in the study area are found to be relatively higher compared to retailers i.e. 26% and 20% respectively. Meanwhile, aggregators receive the lowest share of 3% GM (Table 13). Wholesalers buy a large proportion of local chicken direct from farmers and village traders because the study area is closer to and transected by Morogoro to Dar es Salaam main road. It is thus easier to reach local market and buy chicken at farm gate prices of between Tshs 8500 to Tshs 9000. Upon reaching Dar es Salaam markets chicken are sold at over Tshs 12 500 depending on sex of chicken (cockreals or hens), and seasons.

Kisungwe (2012) calculated GM for local chicken actors in Shinyanga district and found similar results, i.e. with chicken wholesalers earning relatively higher GM than the other value chain actors. Wholesalers in the study area are reported to have relatively higher capital stock and could access financial services which helped them to reap the benefits of economies of scale. Hence, larger consignments and with organized transports to and from local markets were the key to their success.

Table 13:   Gross Margins (Tshs) of actor categories per 100 local chicken's enterprise

Participant/Actors	TVC (Tshs)	TR (Tshs)	GM (Tshs)	% GM
Aggregators	876 000	900 000	24 000	3
Wholesalers	923 000	1 250 000	327 000	26
Retailers	1 279 000	1 600 000	321 000	20

4.4.3   Gross margins for exotic chicken

The same procedures were used by subjecting all production costs to 100 exotic chicken's enterprise. Exotic chicken replacement stock cost is found to be lower (Tshs 120 000 in Table 14) compared to the local chicken i.e. Tshs 349 808 (Table 12). For the case of the exotic chicken enterprise, only Day Old Chicks are purchased as replacement stock. This went contrary to local chicken enterprise where DOCs and pullets are used as replacement stocks. Farmers in this enterprise have to raise chicks from day one up to the time they attained market weight.

Feed cost was calculated at about Tshs 226 589 higher than local chicken feed cost. The reason behind was that exotic chicken have higher growth rate as they are raised under good management and thus attain market weight earlier at 4 to 5 weeks. Another reason

reported was that most of local chicken farmers had a tendency of mixing compounded feeds with locally available edible materials aimed to down out cost of production.

Table 14:   Cost structure and gross margins of 100 exotic chicken batch

Cost/revenue items per 100 chicken	Amount in Tshs
Variable costs	
Stock cost	120 000
Feeds cost	226 589
Electric power	5 055
Kerosene cost	5 502
Drugs cost	8 836
Brood materials cost	2 574
Water bill	5 035
Watering cost	30 055
Vaccination cost	25 636
Brooding cost	25 928
Drugs administration cost	27 600
Total Revenue	653 500
Gross margin per batch	**0.26**
Gross margin per year	**0.60**

Exotic chickens per batch a farmer was found to make GM of 26% in every eight weeks. Since chicken mature early (four to five weeks), it is possible to have 7 turnovers for 100 exotic chicken per year. The turnover is only possible for farmers who can maintain sound management practices so that within seven weeks another batch of 100 chicks can be introduced in the farm. The GM results confirm that local chicken keepers obtained higher GM of 15% than exotic chicken farmers per year in the study area.

4.4.3.1   Gross margins for various actors in exotic chicken value chain

The findings in Table 15 show the marketing costs incurred by various actors and respective gross margins earned at different market channels. The higher gross margin is obtained by the retailers (20%) at marketing channel IV for hundred exotic chicken. Retailers in marketing channel IV include (hawkers, restaurants and small hotels operators as well as chips shops). They obtain relatively higher gross margin as they buy chicken

from wholesalers at lower price of Tshs 5500 per chicken and sometimes buy in bulky and re-sale again after they are processed and roasted at an average price of Tshs 7500.

Wholesalers obtain higher gross margin (18%) at marketing channel IV compared to 15% at channel II. The reason is, at marketing channel II purchases chicken directly from keepers and sell to consumers at Tshs 5500 per live chicken and no retailers included. It is thus when chicken supply is high than demand in Kibaha. At marketing channel IV wholesalers sell chicken at an average price of Tshs 5700 to retailers, and it is when demand for chicken is higher than supply. Retailers finally sell chicken after at Tshs 7500 per processed chicken, and thus earn a gross margin of 20%.

Table 15: **Gross Margins for actor categories in different marketing channels per 100 chickens**

Market participant	Cost item/profit per 100 chickens	I P → C	II P → R → C	III P → W → C	IV P → W → R → C
Wholesalers	Transport			3 000	3 000
	Purchase price			450 000	450 000
	Basket (Tenga)			4 000	4 000
	Levies			1 500	1 500
	Loading			1 000	1 000
	Unloading			1 000	1 000
	Storage			10 000	10 000
	Revenue			550 000	570 000
	GM/100 chicken			**0.15000**	**0.18000**
Retailers	Transport		4 000		4 000
	purchase price		520 000		550 000
	Basket (Tenga)		4 000		4 000
	Levies		1 500		1 500
	Loading		1 000		1 000
	Unloading		1 000		1 000
	Storage		10 000		10 000
	Feeds		10 000		10 000
	Revenue		650 000		750 000
	GM/100 chicken		**0.161**		**0.2000**
Consumers		4 500	6 550	5 500	7 500

P: Producer C: Consumer R: Retailer W: Wholesalers

4.5   Factors Determining Decisions for Respondent to Participate in the Exotic Chicken Value Chain

4.5.1 Regression analysis

Logit regression model was used to determine factors influencing households to opt for exotic chicken farming in the study area. The study aims at making comparisons between local and exotic chicken enterprise, thus only respondents who are keeping either of the two chicken breed are to be considered. Thus, from logit regression analysis, the McFadden's –Pseudo R^2 which measure the goodness fit of variables in the model was 0.52 and was statistically significant at 1% level of precision. Moreover, Chi-square was found to be 0.789 (Table 16) showing that there is strong association between explanatory and explained variables.

4.5.2   Results of Logit regression analysis

The results of logit regression analysis are summarized in Table 16. Education of the household-head had positive impacts on the farmers' decision to participate on the exotic chicken value chain. It is supported by having positive regression coefficient (0.74) which implies that there was a positive relationship between education (level of education) and participation decision. Education is found to be statistically significant at 1% level of precision, implying that an increase of households' level of education increased farmer's participation decision by 74%. An increase in education of household contributes to knowledge, competences and ability to capture modern chicken handling managements.

Table 16:   Factors affecting participation decision in exotic chicken farming from Logistic regression results

Variable	Coefficient	Std. Error	P-Value
GENHH	0.55	0.79	0.46
EDUHH	0.74	0.67	0.00***
FAMSIZE	0.35	0.19	0.06*
AGEGRP	-0.05	0.04	0.28
MARKINFO	-0.36	1.09	0.08**
EXPPRO	2.33	1.12	0.03**
Constant	12.08		0.00***
Chi-square	0.789		0.01***
McFadden's Pseudo R^2	0.529		
n	90		

Note: ***, ** and *: Significant at 1%, 5% and 10% respectively

Regression analysis revealed that average increase in family size is significant at 10% with (P< 0.06). With its positive regression coefficient (0.03), it shows that there is a positive relationship between family size and participation decisions. The plausible explanation is that an increase of a member in the household increases numbers of individuals required to share households' income and also family labour. The study concurs with (Borrin-Feyerabend *et al.,* 2004; Shrestha, 2010) who reported that increase in family size means that family expenses also increase due to many mouths required to be fed in one household.

Experience of household on exotic chicken farming was found to affect participation decision positively, its effect was statistically at (P<0.01). The regression coefficient was positive indicating that increase in experience explained positively the dependent variable. The plausible explanation is that: increase in experiences i.e. number of times households engaged in chicken production enhanced its ability to counter several challenges associated with chicken production. It is reported in this research that most of the

household reared exotic chicken had more than six years in the business. This findings concurs well with (Zeberga, 2010) who reported that high individual experience in poultry business in Ethiopia may favour keepers to conduct their business than a new keepers with less or no poultry keeping experiences.

CHAPTER FIVE

5.0 CONCLUSION AND RECOMMENDATIONS

5.1 Conclusions

The study aimed at investigating economic coordination in the local and exotic chicken value chains in Kibaha district, and ascertained both inter and intra comparative advantages between local and exotic chicken value chains. The comparisons were assessed along the lines of chain efficiency and competitiveness including production costs, marketing prices, and governance structures within the local and exotic chicken value chains. Specifically, the study mapped and compared local and exotic value chains; identified and compared government structures existing between the local and exotic value chains; assessed value chains actors' profitability, and finally determined factors that influenced farmers' decision to participate in the two poultry value chains. In this study three wards: Mlandizi, Kilangalanga, and Kwala from Kibaha district were the research sites.

The first objective was to map and compare local and exotic chicken value chains. The two chicken value chains reported to have relative similarities and differences in terms of actors participating in the marketing channels. Local chicken value chain has five marketing channels while exotic chicken value chain has four marketing channels. Therefore, the key actors in the two chicken value chains structure were chicken keepers, local chicken assemblers, wholesalers, retailers, and consumers. This concludes that, local chicken values chain is longer compared to exotic chicken value chain due to the presence of local assemblers actors. Whereas, their presence make the total number of actors to be five in local chicken value chain compared to four in the exotic value chain. Thus suggests that, the longer the value chain the higher the transaction costs in the chicken industry.

The second objective was to identify and compare governance structures between the two value chains. The findings show that, local chicken farmers have few producer organizations but they are extremely weak. However, none of the producer organizations was reported in the exotic value chain. In addition, chicken keepers lack bargaining power in the market. The relationship between farmers (chicken keepers) and traders was poor such that no contractual relationship was in place between chain participants. Lack of proper information flow affected farmers to adhering to market demands, up- dated price, and standards' requirement. Poor personal communication and especially use of mobile phones by traders and poultry keeper was also the major problem which hinders traders on tracing chicken during marketing.

Therefore is concluded that, the reasons behind poor chicken performances in the study area were: the absence of strong associations for producers and traders to link or supports local and exotic chicken production and marketing. Also the presence of weak horizontal and vertical coordination along the two value chains plays major roles by making the subsector uncompetitive, and thus keepers failed to realize the economic benefits from chicken industry. Moreover, inefficient value chicken coordination subjected traders to the state of selling local chicken at higher price to cover the transaction costs and in this due consumers are the most affected in terms of price leading to low consumption rate as compared to exotic chicken.

The third objective was to assess profitability of actor categories in the two poultry value chains. The findings show that production and marketing costs between local and exotic chicken differ significantly. Local chicken has higher average cost for stock (100 birds batch) replacement (Tshs 349 508) compared to Tshs 120 000 for exotic chicken. In

addition, feeds average cost for exotic chicken was much higher (Tshs 226 589) compared to Tshs 110 000 incurred by local chicken keepers per 100 chicken batch.

Findings show that local chicken keepers can rear up to 3 batches of 100 birds in a year. Thus, local chicken keepers would earn gross margin of Tshs 2 014 170 or gross margin of 75%. The fewer turnovers are due to the facts that local chicken has slow growth rate as a results of genetic makeup. Among actors of the local chicken value chain, wholesalers have higher gross margin percentage (26%) followed by retailers (20%), and aggregators (3%). Moreover, exotic chicken enterprise earns a gross margin of Tshs 297 000 per 100 birds batch. However, with exotic birds it is possible to have a turnover of 7 batches in a year. Thus, would result to a gross margin of Tshs 2 079 000 or (60%) GM per annum. Retailers in the exotic chicken value chain accrued higher GM of (20%) at marketing channel IV where as retailers accrued higher GM (18%) at marketing channel IV compared to (15%) on channel IV.

Therefore, prices and margins among the different actors in the local and exotic chicken value chains differ significantly. Among the actors, the retailers in the value chains obtains the higher profit margins than any other actors as majority of them sells prepared chicken in the hotels, restaurants, bars, and other food vendors centers than those selling live birds. Thus, concludes that value addition process is an effective way for stimulating high profit in chicken value chains.

The fourth objective was to determine the factors that influence farmers' decision to participate in the exotic value chain. The findings from logistic regression analysis show that, education of respondents has a positive influence on farmers' decision to participate in the exotic chicken value chain. Furthermore, analysis shows that an average increase in

family size boosts the likelihood of farmers to participate in the exotic value chain. Lastly, the experience of the respondents in chicken keeping influences positively participation decisions in the exotic chicken value chain.

5.2   Recommendations

Basing on the major findings of the study and from the above given conclusions, the following are recommended.

i.   Linking chicken keepers to the profitable value chain strands

Chicken keepers are the most disadvantageous group in the chicken value chain regardless of major taks they perform including raising chicken. Keepers sell chicken to the middlemen or assemblers who in turn resell again to the profitable outlets. Therefore, if these keepers are linked to these profitable outlets including hotels, restaurants, and bars in the urban area where chicken meat is highly required keepers will be able to accrue high profit. Thus, to make it possible efforts to form keepers groups are highly recommended.

iii.   Establishment of chicken keepers' organization

It has been confirmed that majority of local and exotic chicken keepers are not organized. Group participations among actors should be encouraged so as actors to combine their forces which will leverage their position such as on bargaining, price setting, and production scale increase. Groups (Producer and or Traders organizations, SACCOS, CBOs. etc.) will also enhance access and sharing of up-to-date markets information, new prices, and new technologies. The few producer groups in local chicken values chain have to be strengthened, and also encouraging the exotic keepers to join the existing groups or forming their groups which the economic benefits can be achieved by having more bargaining powers, setting chicken prices. Therefore, there is a need for the extension

officers and other responsible institutions to sensitize keepers voluntarily to form chicken keepers groups which will create awareness on production and marketing.

iv. Recommendations to the government

Government as an institution is required to create a conducive environment for the development of sustainable poultry value chains. Thus, the government policies and interventions affect local and exotic chicken value chains development potential as well as chain sustainability. Therefore, in order to have sustainable chicken value chains the study recommends the followings:

- Strengthen transport infrastructures for transporting chicken and their products to the available chicken outlets so as to take benefit of higher prices.

- Improvement of personal communication and especially mobile telephones which keepers and traders can use to trace each other during marketing and

- Facilitation on the dissemination of market information through all possible means including mass media for the benefit of the all chain participants.

5.3 Recommendation for Further Research

Based on the importance of chicken enterprises to the entire community well-being, the researcher found that there is a need for more study on Gender participation in local and improved chicken value chains especially on; chicken ownership, decision making, and income distribution.

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APPENDICES

Appendix 1: Questionnaire for Chicken Farmers in Kibaha District

A.   HOUSEHOLD INFORMATION

1. Date………………… 2. District………… 3. Ward…………………..

4. Village..............................5. Farmers' name………………6. Age of the respondent…………………

2. Gender of the respondent: 1 = Male 2 = Female

3. Marital Status:

1. = Married   2. = Single 3. = Divorced   4. = Widow

4. Education level of the respondent

1 = No formal education   2 = Primary education 5 = Tertiary education

3 = Secondary education   6 = Others (Specify)

5. What is your main occupation? ....

B. INFORMATION FOR TYPE OF FARMING/PRODUCTION

6. Please, rank your major agriculture activities in order of priorities

1. …………………… 2. …………………………. 3. ……………………

4. ……………………

7. What type of poultry do you keep?

1. Chicken 2. Duck   3. Others (Specify)

8. If chicken, indicate the type of breed and total number kept for last year (2012)

S/N	Type of chicken	Number
1.	Local	
2.	Exotic	
TOTAL		

10. Give reasons for the above selection

…………………….. …………………………

…………………….. …………………………….

11. Who take care of your chicken? 1=Family labour, 2=Hired labour, 3=Both family and hired labour

12. If hired labour what is the mode of payment?

13. How did you start your chicken investment? 1= Bought, 2= Family source, 3=from Institution, 5= Others (Specify)

14. If bought, what was the source of fund? 1=Own, 2= Formal credit, 3= Informal credits, 4=Family, 5= Others (Specify)…………………….

15. If you use credit, which financial institution? 1= Bank, 2=SACCOS, 3=NGO, 4=Others (Specify)…………………..

16. What was the mode of loan repayment? ....

17. Apart from Chicken production what other types of livestocks do you keep? (Please, rank them) 1.................. 2................ 3………………….. 4………………………….

18. What type chicken production system do you use? ....

19. What is your experience (Years) in chicken production? ....

20. What is the source of Chicks (Day Old Chick)? ....

21. Do you receive any extension service (veterinary, debeaking, trainings on proper husbandry management)? 1= Yes, 2=No

22. If Yes, from where? ....

23. What is your major source of income? ....

24. What is your average annual income from chickens you keep? ....

25. What is your average income from other economic activities? ....

C. CHICKEN MARKETING INFORMATION

26. Is there a ready market for chicken and chicken products? 1 =YES 2 = NO

27. If **YES,** what type of Market? ....

28. Which are the market outlets for your Chicken? (Please, rank them)

1. …………………… 2. ……………………… 3. …………….……..

4……………………...... 5……………………… 6………………..………

29. In which form do you sell your chicken?

      1. Live weight 2. Dressed. 3. Both ( )

  30. Who set price for chicken during marketing? ....

   31. Which factors considered in setting chicken price in the market?

1................................   2……………………………….. 3 ………………………

33. What is the mode of payments during chicken selling?

  34. Did you have any prior-arrangement with buyers? 1. Yes 2. No

35. Do you have any contractual agreement with chicken buyers? (circle) 1 = Yes 2 = No	36. Do you have any contractual agreement with input suppliers? (circle) 1 = Yes 2 = No
If yes, please indicate the kind of agreement? 1 = formal contracts 2 = informal contracts	If yes, please indicate the kind of agreement? 1 = formal contracts 2 = informal contracts

What does the contract specify?
   1. Price...
   2. Quality...
   3. Time...
   4. Quantity……………………………
	What does the contract specify?
	 1. Price...
	 2 Quality...
	 3. Time...
	 4. Quantity…………………………..

37. Is there any rule which require you to comply in chicken production and marketing?

    1=Yes, 2=No.

If Yes, mention types of rules and their effects in the table below.

Types of rules	Who sets the rule?	Who translates the rules for you?	Who monitors them?	What happen if you fail to comply with?	What are the rewards for complying with?	Do you receive sanctions for failures? 1=Yes, 2=No	If yes, how many times?

38. What is your source of market information? 1……………………….

2…………………………………. 3…………………..………………..

39. Is there any credit institution in your village? 1=Yes, 2=No

40. If yes, list them and briefly describe how they support you

…………………………………… …………………….……………………………….

41. Is there any farmers' association/cooperative in your village? 1= Yes, 2= No

42. If yes, are you a member? 1= Yes, 2=No

43. List benefits you get by being a member to association/cooperative.

…………………………………… …………………….……………………………….

…………………………………… …………………….……………………………….

D. INFORMATION OF CHICKEN PRODUCTION AND SELLING COST

44. Are there any costs incurred in chicken production? YES=1 () NO=2 ()

Indicate the cost incurred in chicken production including labour and inputs. If Labour were   hired in any operation indicate in terms of Ths/labour for 2012 season

Activity/operation	Frequency	Chicken breed		Cost (TSH)
FIXED COST		Local	Exotic	
1.Housing construction				
2.Hatchery equipment's				
3.Depreciation costs				
VARIABLE COST 1. Average Transport cost				
2. Marketing cost Market tax/levies				
Communication cost				
Brokers' fee				
3. Extension services Disease treatment				
Vaccinations				
4. Labour cost				

45. Mention the amount of chicken produced and selling price per chicken for 2012 season.

Chicken breed	Season 2012		Total sells
	Quantity	Price TSH/Chicken	
Local			
Exotic			
Total			

46. Do you purchase any inputs for chicken production? 1 = YES ( )   2 = NO ( )

   If YES indicate the major inputs and their estimated cost for 2012 season.

Inputs	Chicken breed		Cost (TSH)
	Local	Exotic	
FIXED COST			
VARIABLE COST Day Old Chicken (DOC)/Numbers			
Chick/Starter mash/Bag			
Grower mash /Bag			
Finisher mash/Bag			
Feeding equipment's and drinkers			
Drugs			
Water			
Electricity/Lightning material			
TOTAL			

Appendix 2: Checklist for Extension officers in Kibaha District

1. Name of respondent………………………

2. Name of the District………………………

3. Age of the respondent………………………

4. How long have you been working as farmers in Kibaha District? ....

5. Mention type of extension services you normally provide to chicken producer?

………………………………… …………………………………...

6. How often do you visit your famers in Kibaha district? ....

7. Please, mention all participants of chicken value chain in Kibaha district?

…………………………………… ……………………………………

8. What system of coordination is in place to chicken business related to both local and exotic chicken producer?

9. Is the coordination system based on formal or informal arrangement?

10. Out of the participants you just mention above, who are the leading firm?

11. Are there any rules governing their coordination? 1=Yes, 2=No

12. If Yes, what are those rules?   `............................... …………………………….

13. Please, who set those rules mentioned above?

14. In case of (contract or informal agreement) what are the specifications?

15. How do these rules get translated to farmers? And who does translation?

16. Briefly describe how these rules are enforced?

………………………………………………………………………

17. What are penalties of failure to comply with both rules (formal and informal rules)?

18. What are the incentives available for a well complying with those rules?

19. What do you think are the economic effects resulting from accommodating these rule especially to chicken keepers in Kibaha district?

20. What are the advantages and disadvantages for having the rules governing coordination in chicken value chain in Kibaha districts?

Sno	Rules	Advantages to participant	Disadvantages
1			
2			
3			
4			

Appendix 3: Checklist for Traders in Kibaha District

S/n	location	LOC	
1	Trader no.	**ID**	
2	Date of interview	**DATE**	
3	Age of the Trader	**AGE**	
4	When you started doing chicken business	**START**	
5	What is your main occupation?	**OCCUP**	
6	What is the type of trade you are involved? 1=Retailer 2=Exporter 3=Others (Specify)	**TRADTP**	
7	What type of chicken you are selling? 1=Local 2=Exotic chicken 3= both	**CHICKTP**	
8	Where do you buy chicken mentioned above? 1=Farmers 2=Local aggregators 3=in the auctions 4=Local traders	**CHICKSOC**	
9	Is there any financial institution in your village/town? 1 = Yes 2 = No	**FININST**	
10	Do you receive any supports from financial instructions? 1. YES, 2. NO ( )	**SUPORT**	
11	Do you have trader/marketing organization? 1. YES, 2. NO ( )	**ORGAN**	
12	Are you a member? 1. YES, 2. NO ( )	**MEMBER**	

13. If yes, list them and briefly explain how they support you?

……………….......   ……………………………………………………………

…………………….   ……………………………………………………………

13. How do you transport chicken to the marketing?

 1 = By head   2 = Bicycle   3 = Public transport   4 = Truck/ pick- up

     5 = other (specify) ………………………………

14. Is the transport owned or hired? 1= 0wned 2=Hired

15. If owned/hired, do you share your transport with other actors? 1. YES, 2. NO ( )

16. If yes, how do you share the cost? 1 = by weight/ volume   2 = per trip   3 = Equally   4 = per distance   5 = Other (Specify)…………………….

17. Which services/benefits you normal receive from your organization?

   1……………………... 2……………………. 3………………

18. Buying and selling information

19. Information on marketing costs

20. Do you have any arrangements   (Contractual) with any other actors? 1=Yes 2=No

	Location for purchasing chicken				Location at selling			
Item	How much did pay per chicken on loading	Is there any costs/fees paid(if you paid total cost answer below)	If you paid transport per chicken, what did you paid? (TSH)	Did you pay any levies per chick along the way? 1=Yes 2=No. If yes, state how much per chicken	Is there any Value adding practice you did before selling? 1=Yes 2=No If yes, mention them and how much did it cost per chicken?	How much you paid in unloading within the market? Tsh per chick?	Did you use brokers? 1=Yes 2=No If yes, what did you pay them? Tsh/per sells	What is the average selling price per chicken
ITEM	**LOADCOST**	**ANY FEE**	**TRANSPORT COST**	**TRANSPORT LEVEE**	**VALUE ADEDD COST**	**UNLOADING COST**	**BROCKER FEE**	**SELLING PRICE**
Local chicken								
Exotic chicken								

21. Do you have any contractual agreement with chicken Suppliers? (circle) 1 = Yes 2 = No	22. Do you have any contractual agreement with buyers? (circle) 1 = Yes 2 = No	23. Do you have any contractual agreement with credits provider? (circle) 1 = Yes 2 = No
If yes, please indicate the kind of agreement? 1 = formal contracts 2 = informal contracts	If yes, please indicate the kind of agreement? 1 = formal contracts 2 = informal contracts	If yes, please indicate the kind of agreement? 1 = formal contracts 2 = informal contracts
What does the contract specify? 1. Price...................... 2. Quality.................... 3. Time........................ 4. Quantity……………	What does the contract specify? 1. Price............. 2 Quality.................. 3. Time................ 4. Quantity……………	What does the contract specify? 1. Time……….. 2. Amount of loan…. 3. Interests……….

THANK YOU VERY MUCH FOR YOUR COOPERATION