

**ASSESSMENT OF FACTORS INFLUENCING INDIGENOUS CHICKEN
VALUE CHAIN MARKETING EFFICIENCY AMONG SMALL SCALE
FARMERS OF BARINGO COUNTY, KENYA: CASE OF MOGOTIO SUB-
COUNTY**

BY

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DECLARATION AND RECOMMENDATION

Declaration

I declare that this research project report is my original work and has not been presented for award of Degree in any other University.

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Recommendation

This work has been submitted with my approval as the University Supervisor.

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DEDICATION

I dedicate this research project to my lovely little girl Gracious for giving me an ample time during my entire period of study. Indeed it was a great sacrifice for staying for long hours and even days without mummy's presence. Secondly, to my mother, Melissa for taking care of my girl during part of my study and to my family at large for their moral support all along this great journey. May God bless them abundantly for their encouragement and tireless effort.

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ABSTRACT

Indigenous chicken value chain plays an important role in income generation and poverty reduction, particularly for poor rural women or where people lack land for crop cultivation or formal skills to participate in income-earning activities. However, the poorest and most marginalized rural farmers rarely benefit because they have limited access to skills, market information, cheaper inputs, better market infrastructure and transparent contract farming agreements. Despite its importance, there is little information on the determinants of marketing efficiency in Baringo County. Since market linkage is key in enhancing agricultural productivity and sustainability and indigenous chicken presents an ideal strategy for poverty and food insecurity exit, this research study focused on assessing factors influencing indigenous chicken value chain marketing projects efficiency in Baringo County (production cost, contract farming, market infrastructure and access to market information). The study targeted indigenous chicken farmers and key experts from the Ministry of Agriculture and Livestock, NGOs, Financial providers and Agro-suppliers. The assessment was carried out in Mogotio Sub County and the results generalized to represent Baringo County. A descriptive survey research design was employed with a target population of 456 respondents. Using the Naussiuma(2000) framework, a sample size of 82 respondents was selected. The response rate was 90% which was equivalent to 74 responds. A semi-structured questionnaire was used to collect data which was edited, coded and analyzed using SPSS (Version 20) tools for descriptive analysis. Regression and descriptive statistical techniques were employed in data analysis. The findings were presented using percentages and frequency distribution tables. The study findings indicate that contract farming has the highest level of significance followed by market infrastructure then market information. Production cost has the least level of significance in influencing indigenous chicken value chain marketing efficiency among small scale farmers of Baringo County. Therefore in enhancing marketing efficiency of the indigenous chicken value chain, relevant stakeholders should give priority in accordance to the level of significance of the study findings. This study will contribute to the body of knowledge relating to sustainability of indigenous poultry value chains in Baringo County. Besides focusing on assessing factors influencing indigenous chicken value chain marketing efficiency, it is also anticipated that this study will assist poultry farmers, NGOs, Agro-suppliers, development partners and policy makers to incorporate the findings in their planning and agricultural policy formulation.

ABBREVIATIONS AND ACRONYMS

AGOA	African Growth and Opportunity Act
ASDSP	Agriculture Sector Development Support Program
CIAT	Centre for International Agricultural Technology
GCC	Global Commodity Chains
GDP	Gross Domestic Product
GVC	Global Value Chains
FAO	Food and Agriculture Organization
IC	Indigenous Chicken
IFAD	International Fund for Agricultural Development
ILRI	International Livestock Research Institute
KIPPRA	Kenya Institute of Public Policy Research and Analysis
MFOs	Microfinance Organizations
MOALF	Ministry of Agriculture Livestock and Fisheries
NAMC	National Agricultural Marketing Council
NGO	Non-Governmental Organization
OLS	Ordinary Least Squares
USDA	United States Department of Agriculture
TCE	Transaction Costs Economics

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CHAPTER ONE INTRODUCTION

1.1 Background of the Study

The indigenous chicken (*Gallus domesticus*) value chain is the full range of activities required to bring a product (e.g. chicken, chicks' meat, eggs and manure) from farmers to final consumers passing through the different phases of production, processing and delivery (FAO 2007). It involves a market-focused collaboration among different stakeholders who produce and market value-added indigenous chicken products at both the household and commercial level. Indigenous chicken value chain plays an important role in income generation and poverty reduction, particularly for poor rural women or where people lack access to land for crop cultivation or formal skills to participate in other income-generating activities. Majority of households in Kenya keep I.C under various production systems (Nyaga 2007; Okello et al, 2010; Okitoi et al, 2006). These have different marketing systems with large scale being formalized (Okello et al, 2005). However, most small-scale farmers keep I.C under free range system where they scavenge in and around farmers' homesteads, meeting most of their feed requirements in this way. Free range system requires low input level and have a high contribution in achieving sustainability in low input production systems (Okitoi et al, 2006; Menge et al; 2005). This is attributed to the valuable traits the I.C possess i.e. high disease resistance, adaptation to harsh environments and ability to utilize poor quality feed due to its high genetic variability (Silva et al; 2008).

I.C contributes to household nutrition and provides income to buy food. In Kenya, indigenous chicken constitutes 84.1% of all domesticated birds and contributes to 0.7 GDP and 3.7 per capita annual protein consumption (KIPPRA, 2008). Kenya is one of the most well-developed commercial poultry industries in Africa (Nyaga, 2007).

However, this applies only to the specialized and commercial poultry facilities and not the small scale indigenous chicken farmers.

In Baringo County, there are an estimated 1,081,561 birds out of which 93% are free-ranging Indigenous chicken, while 5 per cent are commercial layers and broilers. The commercial layers and broilers are mainly found in urban and peri urban areas while the I.C are mainly found in rural areas. Other poultry species like ducks, turkeys, pigeons, ostriches, and guinea fowls make up 2 per cent and are becoming increasingly important. Annually, the county produces about 452,613kgs of poultry meat worth Kshs.113, 153,250 and 312,718 trays of eggs worth Kshs. 75,052,408 million (County Director of Livestock Production Office 2015)

According to the IFAD Strategic Framework 2007-2010, worldwide changes in agricultural marketing systems and production technologies are opening up opportunities for small scale farmers in developing countries. However, the poorest and most marginalized rural farmers rarely benefit because they have limited access to skills, market information, cheaper inputs, better market infrastructure and transparent contract farming agreements. In Kenya, traditional marketing channels with ad hoc sales are being gradually replaced by coordinated links among farmers, processors, retailers and wholesalers. The question is not whether, but how to include the different actors in the indigenous chicken value chains by applying a balanced approach that takes into account both competitiveness and equity issues. By combining the strengths of value chain analysis with the needs of indigenous chicken farmers a market-based approach can be developed. However, in the existing market structure in Baringo, poultry farmers are not well organized at production level as groups or cooperative societies and some are not registered with the relevant

authorities. In addition, there is no poultry slaughter facility contrary to other livestock. Essentially, registered poultry farmers are free to establish linkages with support agencies including NGOs in promoting sustainable agriculture at the grassroots. According to CIAT (2004), market chain is the term used to describe the various links that connect all the actors and transactions involved in the movement of agricultural goods from the producer to the consumer. In this regard, marketing chain was used to describe the numerous links that connect all actors and transactions involved in the movement of indigenous chicken products from farmers to consumers (Lunndy et al., 2004).

I.C markets have been expanding due to increase in meat consumption which is linked to increase in income, urbanization and consumer tastes (Delgado et al, 1999; Delgado, 2005). Though meat and egg production of IC is lower than the commercial chicken breeds, there exists a niche market for their meat and eggs than for exotic breeds. A study done in Ethiopia found that village chicken fulfills many roles in the livelihood of poor households in terms of food security, income generation and others. Consumers usually prefer products of local chicken to exotic ones because of flavor and taste of the products (egg and meat) (Amsalu, 2003). Due to a rising health conscious customer, demand for white meat is on increase. Meat and eggs from indigenous chicken are highly priced compared to the exotic ones because they are regarded as more tasty and safe since they are produced naturally without food additives like the growth hormones (FAO, 2007). Patrick (2004) reports even higher premiums with prices of local chickens up to four times that of broiler prices in Indonesia. This therefore presents an ideal strategy for enhancing sustainable income through sale of these valuable products by the smallholder I.C farmers of Baringo

County. On the contrary, this opportunity is not fully exploited since the existing marketing structures hinder their entry into bigger markets to have a share. The elements of Market Structure include the barriers to entry and exit and marketing channels. The market infrastructure facilities include slaughter areas, cold storage, processing and packaging and dedicated selling outlets (Mathuva, 2005). Farmers also need training on agribusiness for them to be business minded so as to produce for the market as opposed to just marketing what they produce locally or just when the need arises due to surplus cockerels or chicken. It is the researcher's view that there is need to shift from just supplying what one produces to consumer driven production since consumers' wants and preferences are not transmitted directly to the products produced by farmers. This calls for linkages to connect producers at one end and consumers at the other end. Poor infrastructure and lack of information have been outlined as the major chicken marketing problems that directly affect indigenous chicken value chain projects.

Smallholders in general and the poor in particular, face problems accessing credit, obtaining market information or new technologies, purchasing inputs and accessing product markets. This hinders them from fully pursuing the opportunities that may present themselves to them as a gateway out of poverty since poor people's decisions are geared towards avoiding risk and vulnerability rather than optimizing investment returns (Bruckner 2004)

According to Berhanu et al., (2007), there are a number of fundamental constraints that lead to poor indigenous chicken performance. These include traditional technologies, limited supply of inputs (feed, breed, stock, water) poor or non-existent of extension service, high diseases prevalence, poor marketing infrastructure, lack of

marketing support service, lack of market information and limited credit services. The indigenous poultry industry in Kenya faces the challenge of trade barriers that have been implemented in some countries such as China and India (McArdle, 2006). In addition it is affected by limited access to institutional services such as extension, training, credit, veterinary services and marketing (Ochieng et al, 2013). In Malaysia, it is the high feed cost and new emerging diseases as the main challenges in the poultry industry (Razak, 2011), while in India the problems faced by the industry are feed cost and ignorance or lack of information on market access for indigenous poultry products (Narayan, 2011).

There is therefore need to address the various constraints affecting the value chain of indigenous chicken products through designing and implementing environmentally friendly sustainable and holistic productivity improvement strategies in order to ensure sustainable improved chicken productivity and satisfy the needs of stakeholders. This will improve food security and income of small scale farmers.

1.2 Statement of the Problem

Indigenous chicken value chain plays an important role in nutrition, income generation and poverty reduction especially to rural people. Despite these roles, it has not received enough attention for its attention as sustainable rural industry. No information is available on the status of market facilities and their effectiveness to deliver the product to meet the high existing demand among consumers. Indigenous chicken contributes to household nutrition and provides income to buy food but the poorest and most marginalized rural farmers rarely benefit because they have limited access to skills, market information, cheaper inputs, better market infrastructure and transparent contract farming agreements. In Kenya, traditional marketing channels with ad hoc sales are being gradually replaced by coordinated links among farmers,

processors, retailers and wholesalers. However, there is no clear approach on how to involve different actors in the indigenous chicken value chains to enhance competitiveness and equity. This calls for need to assess the influence of various factors on marketing and suggest possible interventions that can be undertaken by different value chain actors to enhance IC marketing for sustainability as a rural industry. Moreover, in the existing market structure in Baringo County, not many poultry farmers are well organized at production level as groups or cooperative societies and some are not registered with the relevant authorities. Inadequate or lack of market information and infrastructure facilities including slaughter areas, cold storage, processing and packaging and dedicated selling outlets compounds the marketing problems. Farmers also need adequate training to be business minded to produce for the market as opposed to just marketing what they produce locally or just when the need arises due to surplus cockerels or chicken. Further, a number of factors bedevil indigenous chicken production. These include traditional technologies, limited supply of inputs (feed, breed, stock, water) poor or non-existent of extension service and high diseases prevalence. Smallholder farmers in general and the poor in particular, face problems accessing credit, obtaining market information or new technologies, purchasing inputs and accessing product markets. There are also a limited number of smallholders that are contracted to supply poultry and eggs. Shifting of risk from producers to processors in established contract farming agreements is one sided and due to economies of scale, the contracting companies gains more than the local indigenous chicken farmers.(ASDSP annual report, 2013)

1.3 Purpose of the Study

The purpose of the study was to assess factors influencing indigenous poultry value chain marketing efficiency among small scale farmers of Baringo County.

1.4 Objectives

The objectives of the study were:

1. To establish the influence of market information access on the indigenous chicken value chain marketing efficiency among small scale farmers in Baringo County.
2. To evaluate the influence of production cost on the indigenous chicken value chain marketing efficiency among small scale farmers in Baringo County.
3. To determine the influence of contract farming on the indigenous chicken value chain marketing efficiency among small scale farmers in Baringo County.
4. To assess the influence of market infrastructure on the indigenous chicken value chain marketing efficiency among small scale farmers in Baringo County

1.5 Research Questions

The following are the research questions this study sought to answers:

1. To what extend does market information access influence the indigenous chicken value chain marketing efficiency among small scale farmers in Baringo County?
2. How does production cost influence the indigenous chicken value chain marketing efficiency among small scale farmers in Baringo County?
3. To what extend does contract farming influence the indigenous chicken value chain marketing efficiency among small scale farmers in Baringo County?

4. Does market infrastructure have an influence on the indigenous chicken value chain marketing efficiency among small scale farmers in Baringo County?

1.6 Significance of the Study

The study is important to all actors and facilitators in I.C market chain to enable them come up with interventions that translate to efficient market. First and foremost to farmers, understanding the factors influencing indigenous poultry value chains like training, market information and structure, cost of production and contract farming contribute to a better understanding of the barriers to sound growth of indigenous poultry projects. The results of this study highlights strategies to overcome constraints to the above factors to ensure small scale farmers access markets and therefore improve their living standards through agribusiness. Secondly, the study is useful to the government as the results identifies needs for training, financing and market strategies necessary to address barriers to entry and access to market. This is useful in drafting economic policies and strategies for marketing to ensure distribution and availability in all regions. This ensures regional balance among food deficit and food surplus regions and avoids localized scarcity and abundance. Development partners and investors can also access this information on indigenous chicken product marketing to come up with interventions aimed at fighting poverty and unemployment through development and improvement of the indigenous chicken value chains. Financial institutions also benefit from the study since they are interested in small holder poultry farmers in their enterprises and projects. The micro finance institutions (MFIs) would gain knowledge of how to integrate all the necessary parameters required for sustained growth of indigenous poultry projects. Finally, other researchers, practitioners and consultants will gain insightful knowledge from this

study to borrow ideas on indigenous poultry value chain marketing projects as it contributes to a body of marketing literature.

1.7 Delimitations of the Study

The study was confined to the indigenous chicken value chain in Mogotio Sub-county. It excluded the exotic poultry farmers which in most cases are not found in every household due to capital involvement to start such projects. It involved only the sampled respondents although there are various poultry projects in Mogotio Sub-county. In focusing on assessing factors influencing the indigenous poultry value chain marketing efficiency, the researcher was limited only to stated factors of market information access, production cost, contract farming and marketing infrastructure. This excluded other crucial factors influencing indigenous poultry value chain projects. The study targeted the current small-scale indigenous chicken project farmers and in the process excluded other experienced exotic poultry farmers.

1.8 Limitations of the Study

The areas that posed challenges during the study were low literacy levels among the indigenous chicken farmers who were not able to read and respond to questionnaires. Use of research enumerators to guide the respondent was employed. Mogotio Sub-county is vast and needed elaborate arrangement to cover it as a whole effectively. Logistics of identifying and reaching the poultry farmers promptly presented challenges. To solve this, a map of the area was obtained from the sub county office and the ministries of agriculture and livestock staffs were consulted to aid in identifying the indigenous chicken farmers to participate in the study as respondents. Other limitations will involve personal arrangements by the researcher to finance the research and cover travelling costs. The research also needed adequate time and this

was overcome by developing a reliable research plan and schedule to sample, collect data and analyze the data.

1.9 Basic assumptions of the study

The research study was based on the following assumptions: That all respondents will be cooperative and provide reliable responses through the questionnaires distributed and within the given time schedule. It was based on the belief that the farmers selected were motivated by participating in the indigenous poultry projects. It was also assumed that the sampled respondents were a true representative of the population within Mogotio Sub-county. It was also assumed that the generalized findings covered all the indigenous chicken projects in Baringo County.

1.10 Definition of Significant Terms used in the Study

Market: A medium allowing buyers and sellers of a specific good or service to interact in order to facilitate an exchange. In this study a market is conceptualized as any structure that allows buyers and sellers to exchange goods, services and information.

Marketing: A social and managerial function associated with the process of researching, developing, promoting, selling and distribution of a product or service of intellectual property

Market chain: The sequence of actions necessary to take a product from raw material to a deliverable customer need.

Market Information: A body of marketing knowledge. This entails knowledge about available markets, prevailing supply and demand at different markets and commodity prices offered by different buyers and at different markets.

Market Infrastructure: Include transport and communication networks, market structures, slaughter facilities and processing plants.

Production Cost: Costs associated with production. In this case we shall focus on variable costs incurred by indigenous poultry farmers at farm level. These includes feeds, veterinary services, labor costs, transport and communication cost among others.

Indigenous Chicken Value Chain Marketing Efficiency: The full range of activities required to bring a product (e.g. chicken, meat, eggs and manure) to final consumers passing through the different phases of production, processing and delivery to ensure all actors get optimal profit. In context of this study an efficient market is one in which commodity prices accurately reflect the current market information.

Contract Farming: An agreement between farmers and processing and/or marketing firms for the production and supply of agricultural products under forward agreements mostly at predetermined prices.

Market Integration: Free flow of information and goods over form, time and space. All market actors are well informed about the prevailing market conditions e.g. the prices of poultry and poultry products in different markets, input prices in different markets and their availability.

Global Value Chain: The full range of activities required to bring a product or service from conception through the intermediate phases of production to delivery to consumers and final disposal after use

Equity: Ensuring that the economic gains in value chains are fairly distributed among the various actors by reducing marketing distortions, building relationships among various chain actors and enhancing marketing infrastructure.

Stakeholder: One with vested interest in a given project. In the context of indigenous chicken, stakeholders are farmers, agro dealers, traders, credit providers, policy

makers, extension service providers, veterinary service providers among other service providers.

Small Scale Production System: System whose inputs are primarily derived from the household and whose outputs are meant to contribute mainly to the subsistence needs and surplus sold to meet non subsistence needs

1.11 Organization of the Study

This research report is organized into five chapters; chapter one deals with background to the study in which the definition and concept of indigenous chicken value chain is discussed. The chapter also discusses concept of market infrastructure, contract farming, production cost, market information and poultry farming in Baringo County. Problem statement, purpose, objectives, research questions, significance, limitations and delimitations of the study are also covered in this chapter. Chapter two covers literature review where; related studies and their findings about indigenous chicken value chain in relation to contract farming, market infrastructure, market information and production costs are discussed. The chapter also covers the theoretical and conceptual frameworks of the study. Chapter three deals with research methodology where; research design, target population, size and procedure, instrumentation, data collection instruments, validity and reliability of the research instruments, data collection procedures and methods of data analysis are discussed. Chapter four covers data analysis, presentation and interpretation of research findings while chapter five covers research findings, discussions, recommendations and suggestion for areas of further study.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter reviews the literature relevant to the current study with a critical focus on assessing factors influencing indigenous chicken value chain marketing projects sustainability in Baringo County. By critically evaluating gaps in the previous research studies, it provides information to support this study. The chapter therefore begins by looking at theoretical review, followed by empirical reviews of factors influencing indigenous poultry value chain marketing projects sustainability, the conceptual framework, critique of the existing literature, summary, and it finally concludes by identifying key gaps from previous studies and literature. The study was based on the Global value chain theory and stakeholder theory.

2.1.1 Global Value Chain Theory

Global Value Chain (GVC) analysis originates from the commodity chain approach (Gereffi 1994) and investigates relationships between multi-national companies, the “lead firms”, and other participants in international value chains. In this theoretical stream, power relationships and information asymmetry are key concepts in the analysis of global value chains. Therefore, the focus is on governance and upgrading opportunities in developing country value chains (Gereffi 1999, Gereffi et al. 2005; Kaplinsky 2000; Kaplinsky and Morris 2002; Sturgeon 2001; Gibbon 2001; and, Gibbon and Bair 2008). Kaplinsky (2001) made an important contribution to this theoretical stream by viewing value chains as repositories of rent. According to Kaplinsky (2001), rent arises from unequal access to resources (entry barriers, Porter, 1990) scarcity of resources and from differential productivity of factors, including knowledge and skills. Economic rent is in principle dynamic in nature. Nadvi (2004)

extends the global value chain view to the poverty perspective by investigating the impact of engagement of local actors in GVCs on employment and income. He point out that employment and income are positively affected by inclusion of companies in global value chains. Although at the same time, workers in GVCs become increasingly vulnerable to changing employment contracts and casualization of work.

Gereffi (1994) originally identified four key dimensions of Global Commodity Chains: input-output structure; geographical coverage; form of governance; and institutional framework. However, he gave no indication as how to measure dimensions, nor the potential benefits of participating in one chain as opposed to another. Since then the Global Commodity Chain (GCC) approach has become better known as Global Value Chain (GVC) analysis. The problem with the phrase Global Commodity Chain (GCC) is that the concept of a commodity does not refer to the product itself but the markets in which it is produced and sold (Kaplinsky, 1998). Thus the same product may be a commodity in some cases, but not in others. GVC analysis describes the full range of activities required to bring a product or service from conception through the intermediate phases of production to delivery to consumers and final disposal after use (Kaplinsky, 2000). This implies that the GVC approach is all about value creation and management.

Integrating aspects of new trade/new growth theories within GVC analysis gives us a better insight into what products countries import and export; what rewards accrue to whom; similarly how and why lead firms go about setting up and maintaining production and trade networks. In aligning this theory to the current study, it's apparently clear that value chains including poultry and others experiences power relationships or politics and information asymmetry in terms of knowledge and skills. This will help explain the impact of limited access to market information by poultry

farmers in Baringo County. Further, scarcity and unequal access to resources directly affects the production costs for the primary producers and is shared by other actors along the poultry value chain.

Market infrastructure is also affected leading to reduced benefits and inadequate development of facilities for poultry production and processing. These leaves farmers guessing whether it is worthy or beneficial participating in the poultry value chain. Farming contracts too are affected especially by dynamic employment contracts which make workers more vulnerable. In addition, production costs affects quality and quantities of poultry products produced. These affect the commodities chains prices and therefore have a negative impact on contract farming agreements.

2.1.2 Stakeholder Theory

The most essential course in any development project is the support and active participation of the beneficiary community. Without community participation it is not possible to determine what are the problems, constraints, and local desires for a given community. According to Harvey and Reed (2007), participation of project beneficiaries' is of great essence in that it boosts the sense of ownership among members. This is important in ensuring that projects are operated and maintained after the implementation phase. Community participation theory assumes that the higher the community participation in a decision, the less the likelihood of interferences of external organizations on that decision. In this theory, focus is given on the participation of beneficiaries and not that of personnel from the sponsoring agencies in development projects.

Community participation is attained through collaborative or joint involvement of project beneficiaries and the implementing agencies (Khwaja, 2004). Concepts concerning community participation offer one set of explanations as to why the

practice of community engagement might be useful in addressing the physical, interpersonal, and cultural aspects of individuals' environments. The real value of participation stems from the finding that mobilizing the entire community, rather than engaging people on an individualized basis, leads to more effective results (Braithwaite et al., 1994). Simply said, change "... is more likely to be successful and permanent when the people it affects are involved in initiating and promoting it" (Thompson et al, 1990). In this research, stakeholder participation (actors) at all levels is very critical to achieve indigenous poultry value chain market project sustainability. Both the management of the poultry value chain and collaboration with poultry farmers is very important in solving issues and cutting down production costs along the value chain to the final consumer. This will impact on accessibility to market information, market infrastructure and sustainability of the indigenous poultry projects.

2.2.1 Influence of Access to Market Information to indigenous chicken value chain marketing efficiency

In most agricultural value chains, producers are usually confined to traditional production systems. These chains therefore aim at local market outlets with staple products. Local value chains may deliver to local markets. However, these chains may also connect to low-end markets further away. Because of many intermediary parties (actors/traders), these chains are relatively long, implying limited availability of end-market information, distribution of value added over a large number of actors, and longer transportation distances (both in distance and time). In Kenya, small scale farmers are less concerned with meeting consumers needs and they often are price takers. Their contact with the market is often linked to dealing with a produce

collector or to sales village market and district markets. Johnson (2003) stressed in his case with cocoa and banana farmers in Indonesia and New Guinea that given that farmer's contact with markets is so restricted, it is not surprising that farmers have little awareness of suitability of their products or indeed if they produce the right products. In developing countries value chains deliver a high share of agricultural production volume but channel choices are heavily constrained by market access limitations such as supporting infrastructures to reach markets, access to demand and price information and specific demands from these markets such as production according to quality standards.

Moreover, the ability of companies to take part in market channels is strongly related to characteristics of these markets, knowledge of market demands at the producer and the technological abilities of the producer. (Grunert et al. (2005) found that the more heterogeneous and dynamic the supply of raw material to the value chain, the more market-oriented activities can be expected to take place upstream in the value chain. Conversely, from an end-user market perspective, they find that the extent of heterogeneity and dynamism of end-user markets is a determinant of the degree of market orientation in the chain. Market channels vertically structure the value chain/network. The horizontal dimension is shaped by purchasing, production and delivery dependencies between parties that are positioned in the same value chain links, such as sourcing or marketing cooperatives, or collaborative agreements between small and medium size processors, such as exchange of packaging materials in case of demand fluctuations.

It may be clear that market access, market information and exchange of information through the vertical chain, but also control of quality standards, may be strongly

stimulated and enabled by horizontal collaboration and information exchange, through communication of knowledge and through joint investments in supporting systems. According to Bair and Gereffi (2003), a value chain/network structure is in principle dynamic. For all sectors of the economy, globalization has led to increasingly fine-meshed sourcing, production and distribution networks around the globe. For example, Gereffi (1999) showed for the apparel industry how the global sourcing network evolved from links between Asian low labor-cost producers and Western value added producers, to links between Western brand producers and Asian added value producers.

Asian manufacturers had moved a step forward in the production of value added products and developed multi-layered global sourcing networks for themselves, such that low-wage assembly could be done in other parts of Asia. Also in the food sector, with coffee (Kaplinsky and Fitter 2001) as a good example, differentiation in the last decades has led to further specialized distribution and sales networks worldwide. Fair trade and specialty coffee to be sold at specialty shops, for example, have achieved increasing market shares. However, factors such as international regulations and legislation have also had a big impact on the formation of distribution networks. For example, Gibbon (2003) shows the important role of the AGOA conferred a quota- and duty-free status, from 2000 to 2008, to clothing articles directly imported into the United States from beneficiary countries that meet certain political and economic conditions. This led to an almost immediate move of clothing manufacturing activities from countries like South Africa and Mauritius to Lesotho and Tanzania.

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2.2.2 Influence of Market Infrastructure to indigenous chicken value chain marketing efficiency

Market access is dependent on technological capabilities of producers, available infrastructures, bargaining power and market knowledge and orientation. Market orientation and market knowledge are conditional to market access. In this sub-section we shall focus on market orientation and market knowledge. Grunert et al. (2005) define market orientation of a value chain as “Chain members’ generation of intelligence pertaining to current and future end-user needs, dissemination of this intelligence across chain members and chain wide responsiveness to it”. The more heterogeneous the end-market, the more market-oriented activities are expected to take place by upstream parties in the chain. This implies, in particular for non-commoditized products with high added value, that market orientation should be present at multiple parties in the chain.

Therefore, to be able to participate in high value adding value chains, various parties in the chain up to the primary producer should have knowledge of and be willing to comply to demands in the value chain’s end-market (Grunert et al. 2006). Therefore, a key condition for producers to be included in successful value chains is that they have access to market information and possess the ability to translate it to market intelligence. The further upstream market information on product quality and other

product attributes requested penetrates the value chain, the more heterogeneous markets can in principle be served, assuming that producers can comply with market demands. In this way small scale producers may diversify their production portfolio and capture larger added value from differentiated market channels. Getting access to markets is not a sufficient condition for developing country value chains to be able to sell their products. Supporting infrastructures, resources including knowledge and capabilities are conditional for these chains to be successful.

According to Porter (1990), factor conditions relate to the nation's endowment with resources such as physical, human, knowledge, technology and infrastructure. These factors enable or constrain value chain upgrading. Typical constraints faced by companies in developing countries include lack of specialized skills and difficult access to technology, inputs, market, information, credit and external services (Giuliano et al. (2005). First, low levels of available physical resources such as input materials for production and other input supplies e.g. energy and water constrain value chain upgrading. For example, high energy costs in many Eastern African countries limit growth possibilities for companies and value chains. Second, the geographic position of a company or value chain may impact its competitive position, for example if it is located far from high-value markets such as countries and regions in Central Africa.

Third, availability of educated labor and the availability of knowledge on production, distribution, and marketing is an important condition for innovative behavior of value chain actors. A fourth category is the level and the availability of technology that can be used for production and distribution activities in the value chain. Besides availability of resources the presence of an adequate distribution and communication infrastructure is a basic condition for value chain development and upgrading. Weak

infrastructures hamper efficient flows of products to markets and exchange of market information upstream in value chains.

2.2.3 Influence of Production cost to indigenous chicken value chain marketing efficiency

Indigenous poultry production faces numerous challenges ranging from socio economic factors, technological factors, low productivity, policy and legal frameworks, erratic and unpredictable weather, prevalence of poultry diseases and pests, inadequate capacity for service delivery and weak delivery of extension services. Other obstacles facing indigenous poultry production include inadequate training on indigenous poultry management practices, disease management and cock management which significantly influenced indigenous poultry production. Siyaya et al. (2013) analyzed the profitability of indigenous chicken in Swaziland, using cost benefit analysis and Cobb Douglas production function. The results showed that profitability was affected by feeds cost, market price, stock size, number of birds sold and consumed. Kumar et al. (2013) analyzed profitability of indigenous chicken in Bangladesh using budgetary analysis. They reported that indigenous chicken were profitable in India and vaccination significantly affected profitability. Oladeebo and Ojo (2012) assessed the profitability of poultry production in Nigeria using a budgetary analysis and ordinary Least squares regression. They found that profit depended on the scale of production and was significantly affected by veterinary costs.

Olasunkanmi et al. (2009) reported that fully integrated poultry had higher gross margin compared to non integrated poultry sector in Nigeria. This study used a number of profitability indicators namely: Value added sales ratio, Rate of return on investment and Rate of return on fixed costs. All of these indicators were found to

increase with vertical integration. Tuffor and Oppong (2012) analysed profit efficiency in broiler production in

Ghana using the Cobb Douglas production functions. The results showed that price and experience increased profitability, while labour and operating costs of an individual reduced the profitability. A study by Menge et al. (2005) used a bio economic model to assess indigenous chicken breeding under different production systems. The results showed that free range system was most profitable, while the confined system was the least profitable. Sumy et al. (2010) assessed the productive performance of indigenous chicken in Bangladesh. The results showed that there was profitability with a Benefit Cost Ratio of 1.60 and 1.61 in two of the study areas.

Natukunda et al. (2011) reported that indigenous chicken were profitable in Uganda. The profitability of indigenous chicken was assessed using gross margin analysis and ordinary least squares (OLS). The average cost, distance to the nearest market, access to extension, education level and experience had an effect on profitability. This is also evidenced by a study carried out by Kariuki (2010) which revealed that poultry products traders have been illegally crossing the border to Uganda to buy cheaper poultry products for reselling in Kenya earning better returns in the market but leaving Kenyan farmers suffering from poor market poultry product sales. The cheaper prices are attributed to low feed prices in Uganda which allowed farmers to sell at a relatively low price but still earn a substantial profit.

Zeberga (2010) analyzed the profitability of poultry in Ethiopia using gross margin analysis and reported that this was a profitable enterprise. This was attributed to a low input requirement in the production of the birds.

2.2.4 Influence of Contract Farming to indigenous chicken value chain

marketing efficiency

Olasunkanmi (2008) assessed the economic performance of commercial poultry birds in Nigeria. The results showed that profitability was determined by combination of enterprises of vertical coordination largely aimed at correcting the market failure associated with spot markets that arise due to imperfect market information. Contract farming is defined as an agreement between farmers and processing and/or marketing firms for the production and supply of agricultural products under forward agreements mostly at predetermined prices (Eaton & Shepherd, 2001). The arrangement provides that the buyer of the products provide a degree of production support through, for example, the supply of inputs, storage facilities and the provision of technical advice. For this arrangement to work, the farmer commits himself to provide specific predetermined commodity quantities and at quality standards.

The main feature of contract farming is the shifting of risk from producers to processors since it is a form of futures market. For the poultry value chain, production and price risks are important features of poultry farming hence the foundation of contract farming in poultry projects. Much of the price risk is reduced, in contract farming, by the use of a predetermined price rather than the market price (Martinetz, 2005). In addition, there is also an element of market predictability which can spur investment in the industry. For instance, in the US contracting accounts for over 90% of the total poultry production. Transaction Cost Economic (TCE) Analysis suggests that the main purpose and effects of contracts is to reduce transaction costs associated with spot marketing. Such costs include costs associated with relationship specific transactions whereby contracts provide a safeguard to protect against opportunistic

behavior. Other costs include costs of searching for suppliers or buyers and favorable prices. This leaves more gains to be distributed among producers and consumers (Economic Research Service/USDA, 2002) In addition, contracting in pork industry in the US has been associated with continuing gains in production efficiency, larger litter size, more litters per sow and heavier market weights. Also higher production efficiency and low costs (Kliebenstein and Lawrence; USDA, Animal and Plant Health Inspection Service)

In India, poultry producers prefer contract growing with a fixed and assured returns regardless of shifts in the marketing price as all marketing risk is transferred to the integrator. Contract loyalty is also high and this has been necessitated by the experience of growers in 2000 and 2001 where market prices held below the production costs creating a strong incentive for growers to shift to contract growing as they are highly insulated from price volatility. However, lack of contract compliance by growers has been reported in the North as they keep shifting from one integrator to the other and sometimes to spot marketing.

The integrator pays the grower a flat rate per kilogram of live harvested bird plus a potential bonus where there is an exceed in contractual performance. The integrator provides feeds, Docs, medicine, veterinary services and management guidance and is responsible for removing and marketing mature birds. On the other hand, the farmer provides the house, equipment to the integrator's specification, power, fuel, labor and day to day management. (India's Poultry Sector: Development and Prospects/WRS-04-03)

Strohm and Hoeffler (2006) argue that contract farming has been gaining popularity in developing countries especially for French beans and other horticultural crops in Kenya and Ethiopia.

There are four models of contract farming arrangements namely centralized model, multipartite model, intermediary model and the informal model (Eaton and Shepherd, 2001). The centralized model involves a centralized processor and/or buyer procuring from a large number of small-scale farmers. The cooperation is vertically integrated and in most cases involves the provision of several services such as pre-financing of inputs, extension and transportation of produce from the farmer(s) to the buyers' processing plant. Multipartite contract farming model arises when a combination of two or more organizations (state, private agribusiness firms, international aid agencies or non-governmental organizations - NGOs) work together to coordinate and manage the cooperation between buyers and farmers. An intermediary model shows many characteristics of a centralized model with the difference that they act as an intermediary on behalf of another firm. Normally, the intermediaries organize everything on behalf of the final buyer starting with input supply, extension service, payment of the farmers and final product transport.

While contract farming is widespread in Africa and many other developing countries, there are conflicting views on its impact on the welfare of smallholder farmers. Some authors argue that contract farming is beneficial to the small holder farmers since it enables farmers to access ready markets and also to access global markets (Key and Rusten, 1999; Warnings and Key, 2002; Gulati *et al*, 2005; Minot, 1986; Minot and Roy, 2006; Minot *et al*, 2009). Such authors also argue that contract farming enhances the income of farmers which they attribute to the economies of scale enjoyed in contract farming. On the other hand other authors argue that contract farming is a means of exploiting farmers by the large agribusiness firms due to the unequal

bargaining power (Little and Watts, 1994; Singh, 2002). They criticize contract farming on the basis that most of the contractual terms are too costly for smallholder farmers to comply with and that most large firms break the contractual terms at the expense of the smallholder due to unequal market power. Some other critics of contract farming e.g. Guoyi. et.al, 2005 argue that contract farming is only beneficial to large scale farmers and that it only serves to push smallholder farmers out of the market and could even lead to rural inequality and entrench poverty among the rural smallholder farmers.

According to Gereffi et al. (2001), firms in value chains are linked in a variety of sourcing and contracting relationships; forms of governance. We distinguish two perspectives in the concept of governance of developing country value chains, the transaction (cost) perspective that focuses on governance of transactions in vertical bilateral relationships between firms (Williamson, 1985 and 1999) and the global value chain perspective of Gereffi, Kaplinsky and others, where power relationships, the position of the “lead-firm” and consequences of the distribution of value added products. Gibbon et al. (2008) defines governance as the authority and power relationships that determine how financial, material and human resources are allocated and flow within a chain.

According to Malhotra (2003), governance forms range from spot market relationship, through hybrid governance forms or contracts to vertical integration or hierarchy (meaning bringing the activities of various companies together within one legal entity). Value chains in developing countries are subject to many uncertainties caused by poor physical infrastructures, weak institutional infrastructures and unbalanced

trade relationships and unfavorable social and political conditions, leading to uncertainties and risks for developing country producers. Transactions are enabled and need to be supported by information exchange about characteristics of the product/service and delivery conditions. However, information exchange between companies in developing countries is in many cases hampered by information asymmetries between chain partners, lacking communication infrastructures, and diffuse market channel structures. This makes monitoring of transactions difficult (David & Han 2004).

An extremely promising development in this respect is the increasing use of cell phones by producers in developing countries, enabling them to transfer information about market demands and sales opportunities (Trienekens and Willems 2007; Ruben et al. 2007). At the same time, in the context of the food sector, the introduction of quality and certification schemes goes hand-in-hand with increased monitoring and control by, in most cases, Western buyers and more integrated governance in the value chain, such as long-term contracts, thereby reducing the uncertainties stipulated (Hueth 2002). The use of standards implies reduction of coordination costs, but it may also reduce innovation capabilities that could lead to new value added, as innovation and standardization seem to be opposite forces in value chain development (Dolan and Humphrey 2006)

2.3 Conceptual framework

The conceptual framework shows the relationship between the independent variables and dependent variable. The dependent variable in this study is the indigenous chicken marketing efficiency measured in terms of accessibility of market information, viability of farming contracts, affordability of production costs and better

market infrastructure. The independent variables are access to market information (Education level, chicken prices, accessibility and availability); Production cost (Input cost, Diseases and pests, Extensions and services, Market distance and stock sizes), Contract farming (farming agreements, transaction costs, compensations and loyalty) and market infrastructure (open air markets, Hotels/institutions, individual buyers and slaughter/storage facilities).

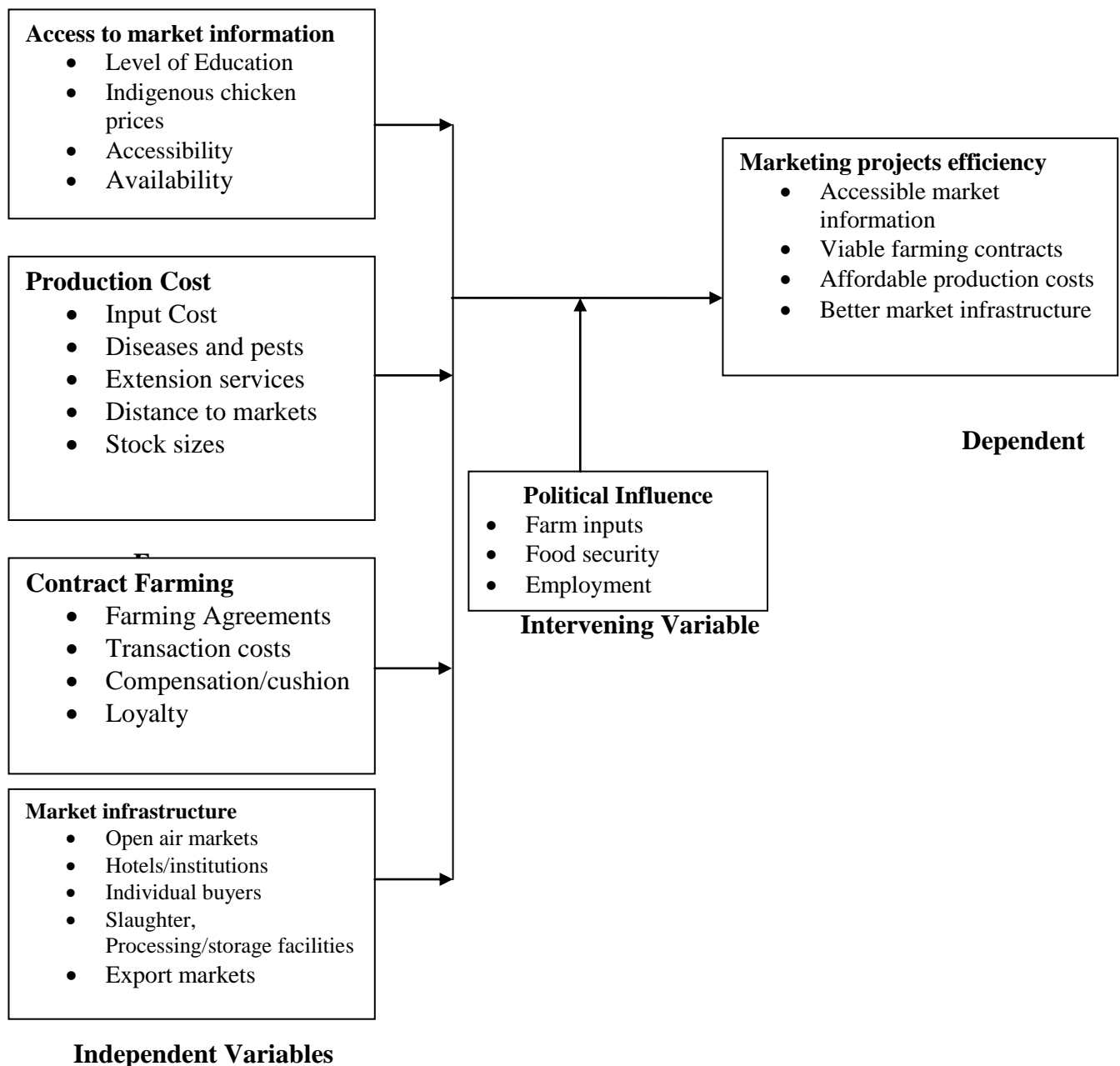


Figure 2.1: Conceptual Framework

2.4 Summary of Literature Review

The study was based on two main theories: Global value chain theory and stakeholder theory. The global value chain theory focuses mainly on power relations and information asymmetry whereby the main focus is on governance and upgrading opportunities for value chains i.e. value creation and management. This leads to the raising of rent due to unequal access to resources and from differential productivity of factors as a result of entry barriers as pointed out by Porter (1990). In relation to poultry value chain access to resources such as market information, infrastructure, production inputs and organized marketing such as contract farming affects marketing efficiency of poultry and poultry products.

Stakeholder theory emphasizes on the importance of participation of all actors and more so the beneficiaries for the sustainability of any project (Harvey and Reed (2007)). There has to be collaboration or joint involvement of the beneficiary group and the implementing agency. Therefore, in this study stakeholder involvement at all levels is very critical to achieve marketing efficiency and sustainability as it helps identify and address various issues affecting the poultry value chain marketing efficiency at different levels.

While all scholars emphasize on the importance of market information, infrastructure and reduced production cost as the vehicles to achieving marketing efficiency, there are conflicting views about the impact of contract farming to marketing efficiency. Some authors argue that contract farming is beneficial to the small holder farmers since it enables farmers to access ready markets and also to access global markets (Key and Rusten, 1999; Warnings and Key, 2002; Gulati *et al*, 2005; Minot, 1986; Minot and Roy, 2006; Minot *et al*, 2009). They also argue that contract farming enhances the income of farmers due to the economies of scale. On the other hand

other authors argue that contract farming is a means of exploiting farmers by the large agribusiness firms due to the unequal bargaining power since most of the contractual terms are too costly for smallholder farmers to comply with. Moreover, most large firms break the contractual terms at the expense of the smallholder due to unequal market power (Little and Watts, 1994; Singh, 2002).

CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Introduction

The chapter covers research area, research design, the target population, sampling frame, sample and sampling technique, data collection and instruments, pilot study, data analysis and presentation.

3.1 Research design

This research study employed a descriptive survey research design. This research strategy was preferred because it permits the collection of data through questionnaires administered to a sample. The data collected by this design was used to suggest reasons for particular relationships between variables (Saunders & Thorn hill, 2007). This design also facilitates the collection of a considerable amount of data quickly, efficiently and accurately (Oso & Onen, 2005). Both qualitative and quantitative methods were employed.

3.2 Target Population

The study targeted a population of 456 respondents comprising of 425 indigenous chicken farmers from 3 wards in Mogotio Sub-county and 31 key informants from ministry of agriculture and livestock, NGOs, financial sector and agricultural products supply companies.

3.3 Sampling Frame and sample size

The sampling frame comprised of all the 456 respondents. The Nassiuma (2000) formula was applied to calculate the sample size.

$$n = \frac{NC^2}{C^2 + (N-1)e^2} \quad \text{Where}$$

n = sample size

N = population size;

C = coefficient of variation which is 50%

e = error margin which is 0.05.

Substituting these values in the equation, estimated sample size (n) was:

$$n = \frac{456 (0.5)^2}{0.5^2 + (456-1)0.05^2}$$
$$n = 82$$

Table 3. 1: Sampling Frame

No.	Strata	Target population	sample size
1	Indigenous poultry farmers	425	74
2	Ministry of Agric. & Livestock officers	20	3
3	NGOs	8	2
4	Financial providers	6	1
5	Agro-suppliers	7	2
	Total	456	82

Source: Ministry of Agriculture, Livestock and Fisheries Mogotio sub-county

3.4 Sample and Sampling Technique

The study employed a stratified random sampling to select 82 respondents using the Nassiuma (2000) formula. However, the response rate was 90%. This was attributed mainly to the poor mobile network system in most parts of the study area as the researcher could not reach some of the sampled respondents. Saunders *et al.* (2009) argued that dividing the population into series of relevant strata means that the sample is more likely to be representative as one can ensure proportional representation within the sample. This is because the population is not homogenous.

3.5 Data Collection Instrument

This study used a semi-structured questionnaire to collect data from the sampled respondents. The instrument further structured to capture data critical to the respondents' profile and research study objectives after the pilot study.

3.6 Testing Validity of the Research Instrument

Validity as noted by Robinson (2009) is the degree to which results obtained from the analysis of the data actually represents the phenomenon under study. Validity is also the degree to which an instrument measures what it is supposed to measure (Kothari, 2004). Content validity was ensured through consulting and discussing with the supervisor during questionnaire development to ensure the items in the questionnaire cover all aspects of the domain intended to be measured and also to ensure they are in appropriate proportions relative to the domain to be measured. The necessary changes were made as advised by the supervisor.

3.7 Testing Reliability of the Research Instrument

Reliability refers to a measure of the degree to which research instruments yield consistent results (Mugenda & Mugenda, 2003). A pilot study was conducted in Eldama Ravine Sub-county with the aim of testing the reliability of the research instrument (questionnaire) before the main research was conducted. The questionnaire was reviewed and adjusted based on the experience and outcome of the pilot test. The results of the pilot study were not included in the final data analysis results.

3.8 Data Collection Procedures

Data was collected from the sampled respondents using a semi-structured questionnaire. Prior to issuing of the questionnaire, the research permit letter was obtained from the University and the research permit obtained. Face to face interview method was employed to administer the questionnaire. This was to allow respondents'

to seek clarity to questions not well understood and also to ensure accurate data entry in cases of illiteracy by the respondents. Drop-and-pick-later method was also be employed especially with key informants and where the respondents were committed and not in position to participate in face to face interview and where the respondent needed some time for reference.

3.9 Ethical Considerations

During data collection, a number of ethical principles were applied. Issues of confidentiality, informed consent, individual or group harm, voluntary participation and ethical issues related to gender, elderly and people living with disability was considered among other ethical principles. All categories of respondents were assured of confidentiality and data collected entered into the questionnaire correctly without any form of manipulation.

3.10 Data Analysis and Presentation

The data collected was coded, edited and tabulated. Analysis was through using the Statistical Package for Social Sciences (SPSS version 23) tool. Data analysis was done using descriptive statistics and basic inferential statistical analysis. Simple linear regression and multiple linear regression methods were also used. Mean standard deviation and percentages were generated. Both quantitative and qualitative analyzed data were integrated into one report based on the thematic areas as identified according to the study specific objectives. The findings were presented using percentages and frequency distribution tables.

CHAPTER FOUR

DATA ANALYSIS PRESENTATION AND INTERPRETATION OF FINDINGS

4.1 Gender of respondents

The study sought to establish the gender of the respondents who took part in the study. According to the findings, 55% of the respondents were male while the remaining 45% were female. These results imply that there were more male participants in the study compared to females.

4.2 Age of respondents

The study sought to find out the age of respondents who participated in the study. The findings were as shown in table 4.1.

Table 4. 1: Age of respondents

Age in years	Frequency (f)	Percentage (%)
18-35	25	34
35-45	26	35
45-55	17	23
55-65	4	5
65-75	2	3
Total	74	100

According to the findings, 35% of the respondents were between the age of 35-45 years, 34% were aged between 18-35 years, 23% were aged between 45-55 years, 5% were aged between 55-65%, while the remaining 3% were aged between 65-75 years. These results indicate that most respondents in the study were aged between 18-55 years.

4.3 Respondents' level of education

The study also sought to establish the level of education of the respondents. The outcome was as shown in the table 4.2.

Table 4. 2: Respondents' level of education

Level of education	Frequency (f)	Percentage (%)
Primary	14	19
Secondary	14	19
College	34	46
Undergraduate	12	16
Postgraduate	0	0
Total	74	100

According to the results, 46% of the respondents had attained college level training, 19% had attained both primary and secondary level training, while the remaining 16% had a university degree. None of the respondents had a postgraduate qualification. These findings imply that most of the participants in the study area had undergone college level training.

4.4 Respondents position in the indigenous chicken value chain

The study also sought to determine the position of the respondent in the indigenous chicken value chain. The findings were as shown in table 4.3.

Table 4. 3: Respondents’ position in the indigenous chicken value chain

Position	Frequency (f)	Percentage (%)
Farmer	61	83
Livestock officer	1	1
Veterinary officer	1	1
Agro dealer	10	14
Microfinance officer	0	0
NGO employee	1	1
Total	74	100

According to the results, 83% of the participants were farmers, 14% were agro dealers, 1% were livestock officers, another 1% were veterinary officers, while further still, another 1% were NGO employee. The findings revealed that none of the respondents were micro officers. These outcome implies that majority of the participants in the study were farmers.

4.5 Duration of residence in the study area

The study sought to establish the duration which the respondents had been resident in the study area. The findings were as captured in figure 4.2.

Table 4. 4: Duration of residence in the study area

Number of years	Frequency(f)	Percentage (%)
<1 year	4	5
1-5	12	16
6-10	19	26
>10	39	53

According to the findings, 53% of the respondents had lived in the study area for more than 10 years, 26% had stayed in the area for 6-10 years, 16% had stayed in the area for 1-5 years, while the remaining 5% had been residents for less than a year. These results imply that majority of the participants had lived in the study area for more than 10 years.

4.6 Number of indigenous chicken kept by farmers

The study sought to determine the number of indigenous chicken kept by farmers. The results were as shown in table 4.5 below

Table 4. 5: Number of indigenous chicken kept by farmers

Number of I.C Kept	Frequency(f)	Percentage (%)
1-20	29	40
21-40	32	43
41-60	7	10
60-80	4	5
Above 80	2	3

The findings revealed that 43% of the respondents kept between 21-40 chicken, 40% of them kept 1-20 chicken, 10% of them kept 41-60 chicken, 5% kept 61-80 chicken, while the remaining 3% kept more than 80 chicken. These results imply that most farmers in the study kept between 1-40 chicken.

4.7 Marketing of poultry/poultry products

The study also sought to find out how respondents marketed their poultry/poultry products. The results were as captured in table 4.6

Table 4. 6: Marketing of poultry/poultry products

Mode of marketing	Frequency(f)	Percentage (%)
Farm level	25	34
Open air markets	17	23
Hotels	3	4
Roadside	1	1

According to the findings, 34% of the respondents marketed their poultry/poultry products at farm level, 23% marketed theirs at open air markets, 4% to hotels, while the remaining 1% used the roadside selling option. The results also indicated that no respondents were selling their products to supermarkets and also none were using integrators/contracted farmers. These results indicate that most farmers market their poultry/poultry products at the farm level as well as in open air markets.

4.8 Distance between the farm and nearest market

The study also sought to determine the distance between respondents' farms and the market. The findings were as shown in table 4.7

Table 4. 7: Distance between the farm and nearest market

Distance(km)	Number of farmers(f)	Percentage (%)
<1	13	18
1-3	20	27
4-6	14	19
7-10	7	10
>10	19	26

The results revealed that 27% of the respondents lived 1-3km away from the market, 26% of them lived more than 10km from the market, 19% of them lived 4-6km away from the market, 15% of them lived less than 1km away, while the remaining 10% lived 7-10km from the market. These results indicate that most farmers lived 1-3km away from the market and more than 10km away from the market.

4.9 Pricing of poultry/poultry products

The study also sought to find out how respondents priced their poultry/poultry products. The findings were as captured in table 4.8

Table 4. 8: Pricing of poultry/poultry products

Price determination	Number of farmers using(f)	Percentage (%)
Fixed	1	1
Negotiate with buyer	53	72
According to market price	12	16
Dictated by the buyer	8	11

The results revealed that 72% of the respondents negotiated with the buyer while determining prices for their poultry/poultry products, 16% of them bargained using the prevailing market prices, 11% of the farmers have no say when it comes to pricing as the price is dictated by the buyer while the remaining 1% used fixed prices to sell their poultry/poultry products. This outcome implies that most farmers applied the negotiation approach to sell their poultry/poultry products.

4.10 Access to market information

The study also sought to determine access to market information by the respondents.

The findings were as captured in table 4.9

Table 4. 9: Access to market information

Variable		SD	D	N	A	SA	Total
Indigenous chicken farmers have access to information on available markets for indigenous chicken	f	12	20	16	18	8	74
	%	16	27	22	24	11	100
The poultry farmers are regularly trained on using market information to sale their poultry products	f	13	27	11	17	6	74
	%	18	37	15	22	8	100
There are regular farming field days and workshops on poultry management and marketing	f	11	29	9	18	7	74
	%	15	39	12	24	10	100
Farmers are able to use mobile technology to reach buyers for their chicken and supplier of their feeds	f	7	22	9	22	14	74
	%	10	30	12	30	18	100
There is regular follow up on farmers to train them on new markets, trends on prices and quality requirements	f	11	34	15	9	5	74
	%	15	47	20	13	8	100
Farmers are usually informed about prices at different markets	f	12	20	8	28	6	74
	%	16	27	11	38	8	100

On whether indigenous chicken farmers had access to information on available markets for indigenous chicken, 43% of the respondents disagreed, 35% of them

agreed, while the remaining 22% neither agreed nor disagreed. These results imply that most indigenous chicken farmers lacked access to information on available markets for indigenous chicken.

On whether poultry farmers are regularly trained on using market information to sale their poultry products, 55% of the respondents disagreed, 30% of them agreed, while the remaining 15% neither agreed nor disagreed. These findings mean that most farmers in the study area are not regularly trained on using market information to sale their poultry products.

Regarding holding of regular farming field days and workshops on poultry management and marketing, 54% of the respondents disagreed that these events were being held regularly, 34% of them agreed, while the remaining 12% neither agreed nor disagreed. This outcome means that farming field days and workshops on poultry management and marketing were not regularly held in the study area.

Concerning use of mobile technology by farmers to reach buyers for their chicken and supplier of their feeds, 48% of the respondents indicated that they were using the technology, 40% stated that they were not using the technology, while the remaining 12% neither agreed nor disagreed. These results imply that most farmers in the study area were using mobile technology to reach buyers for their chicken and supplier of their feeds.

The study also sought to determine whether there were regular follow ups on farmers to train them on new markets, trends on prices and quality requirements. Accordingly, 62% of the respondents disagreed that such follow ups were being conducted, 20% of them neither agreed nor disagreed, while the remaining 18% agreed. These results

indicated that regular follow ups on farmers were not being done in the study area as would have been expected.

Finally, the study also sought to establish whether farmers are usually informed about prices at different markets. In this case, 46% of the respondents agreed, 43% of them disagreed, while the remaining 11% neither agreed nor disagreed. These findings mean that most farmers were being informed about prices at different markets.

4.11 Awareness on existence of poultry/poultry products information system

The study also sought to find out farmers' knowledge regarding the existence of a poultry/poultry products information system in the study area. According to the results, 56% of the respondents were unaware of the existence of a poultry/poultry products information system, while the remaining 44% indicated that such a system existed. These findings imply that most farmers in the study area are unaware of the existence of a poultry/poultry products information system.

4.12 Extent of use of the poultry/poultry products information system

The study also sought to determine the extent of use of the poultry/poultry products information system by farmers in the study area. According to the findings, 73% of the respondents indicated that they rarely used the poultry/poultry products information system, 21% of them stated that they made use of the system on a regular basis while the remaining 6% never made use of the system. This means that most respondents in the study area rarely made use of the existing poultry/poultry products information system.

4.13 Medium used to access market information

The study also sought to determine the medium used by respondents to access market information in the study area. The results were as captured in table 4.10

Table 4. 10: Medium used to access market information

Medium used	Number of farmers using it(f)	Percentage(%)
Radio	14	19
Traders/brokers	41	55
Social media	6	8
Agric extension staff	11	15
Agricultural information system	2	3

According to the findings, 55% of the respondents indicated that they made use of traders/brokers to obtain market information, 19% of them indicated that they made use of the radio, 15% of them made use of agricultural extension staff, 8% made use of the social media, while the remaining 3% made use of the agricultural information system/Internet. These findings mean that the mostly used medium to access market information in the study area was traders/brokers. On the other, the least used medium was the agricultural information system/Internet.

4.14 Respondents' awareness of contract farming

The researcher also set out to determine respondents' awareness of contract farming. According to the results, 52% of the respondents indicated that they were not aware of the concept of contract farming, whereas the remaining 48% stated that they were aware. This outcome implies that most participants in the study area were unaware of the concept of contract farming.

4.15 Frequency of signing farming contract agreements

The researcher also sought to establish the frequency of signing farming contract agreements among respondents. The results indicate that 72% of the respondents were unaware of the frequency of signing farming contract agreements, 26% of them indicated that they signed the contracts on an yearly basis, while the remaining 2% stated that they signed the contracts after every 2 years. This outcome implies that most participants in the study area were unaware of the frequency signing farming contract agreements. The results also revealed that none of them signed the contracts for over a period of 2 years.

4.16 Respondents' awareness about contracted farmers in the study area

The study also set to find out respondents' awareness regarding contracted farmers in the study area. The findings revealed that 76% of the respondents did not know of any contracted farmer in the study area while the remaining 24% indicated that they knew a contracted farmer in the area. These results indicate that most of the participants did not know any contracted farmer in the study area.

4.17 Respondents' contractual farmer status

The study also sought to establish whether the respondents' were contractual farmers or not. According to the study results, 92% of the respondents who were farmers were non-contractual while the remaining 8% were contractual. This outcome mean that majority of farmers in the study area were non-contractual.

4.18 Frequency of payments by contracting companies

The researcher also sought to find out the frequency of payments by contracting companies to farmers in the study area. The results were as shown in table 4.11

Table 4. 11: Frequency of payments by contracting companies

Frequency of payment	Number of farmers(f)	Percentage
Monthly	7	10
2-3months	37	50
4-5 months	8	10
Over 6 months	22	30

The findings revealed that 50% of the respondents received payments from contracting companies after 2-3 months, 30% of them indicated the payments were made after 6 months, 10% indicated that the payments were done on a monthly basis another 10% indicated that the payments were made between 4-5 months. These findings imply that most contracting companies paid farmers between 2-3 months.

4.19 Farmers' perception of contract farming agreements

The study sought to establish whether farmers were comfortable with contracting agreements. The results revealed that 61% of the respondents were comfortable with

contract farming agreements while the remaining 39% of them were uncomfortable. This findings indicated that majority of the respondents were comfortable with contract farming agreements.

4.20 State of contract farming agreements

The study also sought to establish the current state of contract agreements in the study area. The results were as captured in table 4.12

Table 4. 12: State of contract farming agreements

Variable		SD	D	N	A	SA	Total
Farmers have enough chicken stocks/numbers to sustain the contract supply agreement	f	15	18	6	26	9	74
	%	20	24	8	36	12	100
There are signed agreements between the farmers and contracting companies to supply indigenous poultry	f	18	23	11	14	8	74
	%	24	31	15	19	11	100
The predetermined poultry prices are favorable for indigenous poultry farmers compared to local market	f	8	11	21	26	8	74
	%	11	15	28	35	11	100
There is a company policy to ensure indigenous poultry farmers supply indigenous chicken products	f	14	20	16	19	5	74
	%	19	27	22	25	7	100
The contract agreements between farmers and contracting companies are always honored	f	13	7	13	28	13	74
	%	18	10	18	36	18	100
The contracting companies train farmers on quality requirements and supply them with some inputs	f	11	25	11	20	7	74
	%	15	34	15	26	10	100

The study sought to determine whether farmers had enough chicken stocks/numbers to sustain the contract supply agreement. According to the findings, 48% of the

respondents agreed, 44% of them disagreed, while the remaining 8% neither agreed nor disagreed. This results implied that majority of farmers had enough chicken stocks/numbers to sustain the contract supply agreement.

The study also sought to find out whether farmers had signed agreements with contracting companies to supply them with indigenous poultry. Accordingly, 55% of the respondents indicated that there were no signed agreements between farmers and contracting companies for the supply of indigenous chicken to the later, 30% of them indicated that such contracts existed, while the remaining 15% neither agreed nor disagreed. These findings mean that most farmers in the study area had not signed agreements with contracting companies regarding the supply of indigenous poultry.

The researcher also sought to examine whether predetermined poultry prices were favorable for indigenous poultry farmers compared to local markets. Consequently, 46% of the respondents agreed, 28% of them neither agreed nor disagreed, while the remaining 26% disagreed. This outcome indicated that predetermined poultry prices were favorable for most indigenous poultry farmers compared to local markets.

The researcher also set out to establish whether there was a company policy to ensure indigenous poultry farmers supply indigenous chicken products to contracting firms. The results showed that 46% of the respondents disagreed that such policies existed, 32% of them agreed, while the remaining 22% of them neither agreed nor disagreed. This outcome means that there existed no company policies in the study area that would ensure most indigenous poultry farmers supply indigenous chicken products to contracting firms.

In addition, the study set out to determine whether the contract agreements between farmers and contracting companies were always honored. The results showed that 54% of the respondents agreed, 28% of them disagreed, while the remaining 18% neither agreed nor disagreed. These findings imply that most participants believed that contract agreements between farmers and contracting companies were always honored.

Finally, the study sought to find out whether contracting companies in the study area trained farmers on quality requirements as well as supplying them with some inputs. As a result, 49% of the respondents disagreed, 36% of them agreed, while the remaining 15% neither agreed nor disagreed. These findings mean that most contracting companies did not engage in training the farmers on quality requirements and also failed to supply them with any inputs.

4.21 Production costs

The study sought to determine production costs as incurred by farmers in the study area. The results were as captured in table 4.13

Table 4.13: Production costs

Variable		SD	D	N	A	SA	Total
The cost of feeds and vaccines are affordable	f	13	19	17	18	7	74
and available to poultry farmers	%	17	26	23	24	10	100
There is extension services and training of	f	6	23	9	24	12	74
farmers on poultry production by ministry of	%	8	31	13	32	16	100
agriculture, livestock, and fisheries							
Farmers are trained on poultry diseases,	f	3	24	6	25	16	74
hygiene and management of poultry	%	5	32	8	33	22	100
production							
The poultry production information is	f	6	25	22	17	4	74
readily available to farmers	%	8	34	29	23	6	100
The agro-supply companies train farmers on	f	6	32	8	13	15	74
use of vaccines for their poultry	%	8	43	11	17	21	100

The study sought to find out whether the cost of feeds and vaccines were affordable and available to poultry farmers in study area. Accordingly, 43% of the respondents disagreed, 34% of them agreed, whereas the remaining 23% neither agreed nor disagreed. These findings indicate that the cost of feeds and vaccines were not affordable and also unavailable to most poultry farmers in the study area.

The researcher also set out to determine whether there existed extension services and training of farmers on poultry production by the ministry of agriculture, livestock, and fisheries. Consequently, 48% of the respondents agreed that such services were available, 39% disagreed of them disagreed, while the remaining 13% neither agreed nor disagreed. The implication of these results is that, there existed extension services and training of most farmers on poultry production by the ministry of agriculture, livestock, and fisheries.

The study also sought to determine whether farmers were being trained on poultry diseases, hygiene and management of poultry production. According to the results, 55% of the respondents agreed that such training was being undertaken, 37% of them disagreed, while the remaining 8% of them neither agreed nor disagreed. This outcome shows that most farmers in the study area were being trained on poultry diseases, hygiene and management of poultry production.

Also, the researcher set out to determine whether poultry production information is readily available to farmers in the study area. Consequently, 42% of the respondents disagreed that poultry production information was readily available to farmers, 29% of them agreed, while another 29% neither agreed nor disagreed. These findings imply that poultry production information was not readily available to most farmers in the study area.

Finally, the study also sought to establish whether, agro-supply companies in the study area offered training to farmers on use of vaccines for their poultry. Accordingly, 51% of the respondents disagreed, 38% of them agreed, while the remaining 11% neither agreed nor disagreed. The implication of these findings is that

agro-supply companies in the study area were not offering training to most farmers on use of vaccines for their poultry.

4.22 Market infrastructure

The study also sought to examine the state of market infrastructure in the area of study. The results were as shown in table 4.14

Table 4.14: Market infrastructure

Variable		SD	D	N	A	SA	Total
The open air markets offer better prices for indigenous chicken and their products	f	9	18	12	19	16	74
	%	12	24	16	26	22	100
Farmers sell indigenous chicken to hotels and institutions in various towns	f	6	20	9	28	11	74
	%	8	28	12	38	14	100
There are indigenous chicken slaughtering, processing and packaging facilities for value addition	f	29	21	8	10	6	74
	%	39	28	11	14	8	100
Farmers are able to access export markets through the contract farming agreements	f	20	23	6	18	7	74
	%	27	31	8	24	10	100
There are transport networks connecting various markets which are reliable and conducive for indigenous chicken	f	14	16	14	24	6	74
	%	19	24	19	30	8	100

The study sought to determine whether open air markets were offering better prices for indigenous chicken and their products to farmers. As a result, 48% of the respondents agreed that the open air markets were offering better prices to farmers,

36% of them disagreed, while the remaining 16% neither agreed nor disagreed. These results indicate that open air markets in the study area offered most farmers better prices for indigenous chicken and their products.

The researcher sought to establish whether farmers sell indigenous chicken to hotels and institutions in various towns. Consequently, 52% of the respondents agreed that such sales existed, 36% of them disagreed, where as the remaining 12% neither agreed nor disagreed. The implication of this outcome is that most farmers in the study area sell indigenous chicken to hotels and institutions in various towns.

The study in addition sought to determine whether there were indigenous chicken slaughtering, processing and packaging facilities in the study area. According to the results 67% of the respondents disagreed such facilities existed, 22% of them agreed, while the remaining 11% neither agreed nor disagreed. These results mean that there were no indigenous chicken slaughtering, processing and packaging facilities in the study area.

The researcher also set out to examine whether farmers are able to access export markets through the contract farming agreements. Consequently, 58% of the respondents disagreed that had access to export markets, 34% of them agreed, while the remaining 8% neither agreed nor disagreed. These findings imply that most farmers in the study area are unable to access export markets through the contract farming agreements.

Finally, the researcher sought to find out whether there existed reliable and conducive transport networks connecting farmers to various markets as far as marketing of indigenous chicken is concerned. Accordingly, 43% of the respondents disagreed that

such a network existed, 38% of them agreed, whereas the remaining 19% neither agreed nor disagreed. This outcome means that existing transport networks connecting most farmers to various markets in the study area are not reliable and conducive for the marketing of indigenous chicken.

4.23 Political influence

The researcher also set to examine the influence of politics on marketing of poultry/poultry products in the study area. The results were as captured in table 4.8.

Table 4. 13: Political influence

Variable		SD	D	N	A	SA	Total
The local leaders influence the marketing of indigenous chicken to external buyers	f	16	12	15	18	12	74
	%	23	16	21	24	16	100
Political differences among indigenous poultry farmers affects indigenous poultry production and marketing	f	5	18	11	27	12	74
	%	7	24	15	38	16	100
Local politics affects distribution of resources to poultry farmers especially subsidized inputs	f	3	17	14	22	18	74
	%	5	23	19	30	23	100
Indigenous poultry farmer group officials influences how the group negotiates for contract farming and pricing of chicken	f	7	27	10	17	13	74
	%	10	35	14	23	18	100
Local politics influences construction of transport networks connecting various markets and farmers	f	3	15	6	32	18	74
	%	4	20	8	44	24	100

The researcher sought to determine whether the local leaders influenced the marketing of indigenous chicken to external buyers. Consequently, 40% of the respondents agreed that such influence existed, 39% of them disagreed, while the remaining 21% neither agreed nor disagreed. The results imply that most local leaders influenced the marketing of indigenous chicken to external buyers.

The researcher also set out to establish whether political differences among indigenous poultry farmers affected indigenous poultry production and marketing. In this case, 54% of the respondents agreed that such differences were affecting indigenous poultry production and marketing, 31% of them disagreed, while the remaining 15% neither agreed nor disagreed. These results imply that political differences among most indigenous poultry farmers affected indigenous poultry production and marketing in the study area.

The study also examined whether local politics affected distribution of resources to poultry farmers especially subsidized inputs. In reference to this, 53% of the respondents agreed that local politics affected distribution of resources to poultry farmers, especially subsidized inputs, 28% of them disagreed, while the remaining 19% neither agreed nor disagreed. These results indicate that local politics affect distribution of resources to a majority of poultry farmers, especially subsidized inputs.

The study sought to establish whether indigenous poultry farmer group officials influenced how the group negotiates for contract farming and pricing of chicken. In this regard, 45% of the respondents disagreed that indigenous poultry farmers' group officials influenced how the group negotiates for contract farming and pricing of chicken, 41% of them agreed, while the remaining 14% neither agreed nor disagreed.

These results indicate that most indigenous poultry farmers' group officials influenced how the group negotiates for contract farming and pricing of chicken.

Finally, the researcher also sought to establish whether local politics influenced construction of transport networks connecting various markets and farmers. Consequently, 68% of the respondents agreed that local politics influenced the construction of transport networks connecting various markets and farmers, 24% of them disagreed, while the remaining 8% neither agreed nor disagreed. The implication of this finding is that local politics influenced construction of transport networks connecting various markets and farmers in the study area.

4.24 Efficiency of indigenous chicken marketing

The researcher also set out to determine the efficiency of indigenous chicken marketing in the study area. The results were as captured in table 4.9.

Table 4. 14: Efficiency of marketing projects

Variable		SD	D	N	A	SA	Total
The local poultry farmers have access to better and efficient chicken markets	f	13	20	22	10	9	74
	%	16	27	30	16	11	100
The farmers experience reduced poultry production costs and therefore make profit from selling chicken	f	12	18	19	19	6	74
	%	16	24	25	27	8	100
Local poultry farmers have viable contract farming agreements with the buyers and sellers	f	13	31	19	7	4	74
	%	16	39	26	11	8	100
There are better market structures and facilities to enable farmers earn better income from selling chicken	f	8	35	10	15	6	74
	%	10	45	14	23	8	100
Farmers are compensated whenever they do not meet the agreements to supply certain number or quality of chicken due to natural calamities or disease outbreaks	f	30	23	13	3	5	74
	%	41	31	17	4	7	100

The study sought to establish whether the local poultry farmers had access to better and efficient chicken markets. Regarding this, 33% of the respondents disagreed that such access existed, 30% of them neither agreed nor disagreed, while the remaining 27% agreed. The implication of this outcome is that the most local poultry farmers lacked access to better and efficient chicken markets.

The researcher sought to determine whether farmers experienced reduced poultry production costs and therefore make profit from selling chicken. Concerning this, 40% of the respondents disagreed that the farmers experienced reduced poultry production costs and were thus able to make profit from selling chicken, 35% of them agreed, while the remaining 25% neither agreed nor disagreed. These findings indicated that most farmers in the study area did not experience reduced poultry production costs and were thus unable to make profit from selling chicken.

The study also examined whether local poultry farmers had viable contract farming agreements with the buyers and sellers. Consequently, 55% of the respondents disagreed that such agreements existed, 26% of them agreed, while the remaining 19% neither agreed nor disagreed. These results imply that most local poultry farmers did not have viable contract farming agreements with the buyers and sellers.

The researcher also sought to determine whether better market structures and facilities existed that would enable farmers earn better income from selling chicken. Accordingly, 55% of the respondents disagreed that such structures and facilities existed, 31% of them agreed, while the remaining 14% neither agreed nor disagreed. This outcome means that the study area lacked better market structures and facilities existed that would enable most farmers earn better income from selling chicken.

Finally, the study examined whether farmers were being compensated whenever they failed to meet the agreements to supply certain number or quality of chicken due to natural calamities or disease outbreaks. Accordingly, 72% of the respondents disagreed that such compensation existed, 17% of them neither agreed nor disagreed, while the remaining 11% agreed. These findings imply that most farmers in the study area did not get any compensation whenever they failed to meet the agreements to supply certain number or quality of chicken due to natural calamities or disease outbreaks.

4.25 Answers to research questions

4.25.1 What is the influence of access to market information on indigenous chicken marketing efficiency among small scale farmers of Baringo County?

In order to answer this question, simple regression was conducted to investigate how well access to market information predicted efficiency of marketing projects. The findings were as captured in the following tables: 4.10, 4.11 and 4.12.

Table 4. 15: Model summary on influence of access to market information on indigenous chicken marketing efficiency.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.469 ^a	.220	.209	3.656

a. Predictors: (Constant), access to market information

Table 4. 16: ANOVA on influence of access to market information on efficiency of marketing projects

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	263.429	1	263.429	19.710	.000 ^b
	Residual	935.557	70	13.365		
	Total	1198.986	71			

a. Dependent Variable: market efficiency

b. Predictors: (Constant), access to market information

Table 4. 17: Coefficients on influence of access to market information on efficiency of indigenous chicken marketing

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	6.066	1.569		3.867	.000
	Access to market information	.399	.090	.469	4.440	.000

a. Dependent Variable: market efficiency

The results were statistically significant $F(1, 70) = 20.9, p < .001$. The identified equation to understand the relationship between the two variables was: efficiency of marketing projects (y) = 6.066 + 0.399 x s (access to market information). The results therefore indicated that access to market information only explains about 21% of the variance in efficiency of marketing projects. This outcome means that access to market information has quite a significant influence on efficiency of marketing projects in the study area.

4.25.2 What is the influence of production costs on indigenous chicken marketing efficiency among small scale farmers of Baringo County?

In order to address this question, simple regression was conducted to examine how well production costs predicted efficiency of marketing projects. The findings were as captured in the following tables: 4.13, 4.14 and 4.15.

Table 4. 18: Model summary on influence of production costs on efficiency of marketing projects

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.249 ^a	.062	.049	4.008

a. Predictors: (Constant), production costs

Table 4. 19: ANOVA on influence of production costs on efficiency of marketing projects

Model		Sum of Squares	Df	Mean Square	F	Sig.
	Regression	74.365	1	74.365	4.629	.035 ^b
1	Residual	1124.621	70	16.066		
	Total	1198.986	71			

a. Dependent Variable: market efficiency

b. Predictors: (Constant), production costs

Table 4. 20: Coefficients on influence of production costs on efficiency of marketing projects

Model	Unstandardized		Standardized	t	Sig.
	Coefficients		Coefficients		
	B	Std. Error	Beta		
(Constant)	9.200	1.723		5.341	.000
1 Production costs	.233	.109	.249	2.151	.035

a. Dependent Variable: market efficiency

The results were statistically significant $F(1,70) = 4.9, p < .04$. The identified equation to understand the relationship between the two variables was: efficiency of marketing projects $(y) = 9.200 + 0.233x$ (production costs). The results therefore indicated that production costs only explain about 5% of the variance in efficiency of marketing projects. The findings thus imply that production costs had little influence on efficiency of marketing projects in the study area.

4.25.3 How does contract farming influence indigenous chicken marketing efficiency among small scale farmers of Baringo County?

In order to answer this question, simple regression was conducted to examine how well contract farming predicted efficiency of marketing projects. The findings were as captured in the following tables: 4.16, 4.17 and 4.18.

Table 4. 21: Model summary on influence of contract farming on efficiency of marketing projects

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.644 ^a	.414	.406	3.180

a. Predictors: (Constant), contract farming

Table 4. 22: ANOVA on influence of contract farming on efficiency of marketing projects

Model		Sum of Squares	Df	Mean Square	F	Sig.
	Regression	493.589	1	493.589	48.818	.000 ^b
1	Residual	697.650	69	10.111		
	Total	1191.239	70			

a. Dependent Variable: market efficiency

b. Predictors: (Constant), contract farming

Table 4. 23: Coefficients on influence of contract farming on efficiency of marketing projects

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
	(Constant)	4.873	1.196		4.074	.000
1	Contract farming	.452	.065	.644	6.987	.000

a. Dependent Variable: market efficiency

The results were statistically significant $F(1, 69) = 41, p < .001$. The identified equation to understand the relationship between the two variables was: efficiency of

marketing projects $(y) = 4.873 + 0.452x$ (contract farming). The results therefore indicated that contract farming explains about 41% of the variance in efficiency of marketing projects. This means that contract farming has a great influence on efficiency of marketing projects in the study area.

4.25.4 What is the influence of market infrastructure on indigenous chicken marketing efficiency among small scale farmers of Baringo County?

In order to answer this question, simple regression was conducted to investigate how well access to market information predicted efficiency of marketing projects. The findings were as captured in the following tables: 4.19, 4.20 and 4.21.

Table 4. 24: Model summary on influence of market infrastructure on marketing efficiency of indigenous chicken.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.687 ^a	.472	.465	3.007

a. Predictors: (Constant), market infrastructure

Table 4. 25: ANOVA on influence of market infrastructure on efficiency of marketing projects

Model		Sum of Squares	Df	Mean Square	F	Sig.
	Regression	566.101	1	566.101	62.613	.000 ^b
1	Residual	632.885	70	9.041		
	Total	1198.986	71			

a. Dependent Variable: market efficiency

b. Predictors: (Constant), market infrastructure

Table 4. 26: Coefficients on influence of market infrastructure on efficiency of marketing projects

Model		Unstandardized		Standardized	t	Sig.
		Coefficients		Coefficients		
		B	Std. Error	Beta		
	(Constant)	4.080	1.153		3.538	.001
1	Market infrastructure	.623	.079	.687	7.913	.000

a. Dependent Variable: market efficiency

The results were statistically significant $F(1,70) = 46.5$, $p < .001$. The identified equation to understand the relationship between the two variables was: efficiency of marketing projects (y) = 4.080 + 0.623x (market infrastructure). The results therefore indicated that market infrastructure explains about 47% of the variance in efficiency of marketing projects. This outcome means that market infrastructure plays a key role in influencing efficiency of marketing projects.

4.25.5 What is the combined influence of access to market information, production costs, contract farming and market infrastructure on indigenous chicken marketing efficiency among small scale farmers of Baringo County?

In order to answer this question, multiple regression was conducted to establish the best predictors of efficiency of marketing projects. The results were as captured in the following tables: 4.22, 4.23 and 4.24.

Table 4. 27: Model summary on combined influence of independent variables on the dependent variable

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.764 ^a	.584	.559	2.740

a. Predictors: (Constant), market infrastructure, production costs, access to market information, contract farming

Table 4. 28: ANOVA on combined influence of independent variables on the dependent variable

Model		Sum of Squares	Df	Mean Square	F	Sig.
	Regression	695.560	4	173.890	23.154	.000 ^b
1	Residual	495.679	66	7.510		
	Total	1191.239	70			

a. Dependent Variable: market efficiency

b. Predictors: (Constant), market infrastructure, production costs, access to market information, contract farming

Table 4.24 Coefficients on combined influence of independent variables on the dependent variable

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
	(Constant)	1.533	1.488		1.030	.307
	Access to market information	.079	.083	.093	.955	.343
1	Contract farming	.247	.070	.352	3.524	.001
	Production costs	-.012	.082	-.013	-.144	.886
	Market infrastructure	.415	.089	.459	4.639	.000

a. Dependent Variable: market efficiency

When the combination of variables to predict efficiency in marketing projects included market infrastructure, production costs, access to market information, and contract farming,). $F(4,66) = 55.9, <.001$. The results indicated that contract farming ($p<.001$) and market infrastructure ($p<.001$) significantly predicted efficiency in marketing projects. This means that the variables with the most influence on efficiency of marketing project were contract farming and market infrastructure. In addition, the adjusted R squared value was .559. This indicates that 56% of the variance in the dependent variable (efficiency of marketing projects) was explained by the model.

CHAPTER FIVE
FINDINGS, DISCUSSION, RECOMMENDATIONS AND SUGGESTION FOR
AREAS FOR FURTHER STUDY

5.1 Findings and Discussion

It was noted that there was very little information on how to contact buyers and prices offered at different markets. In a number of interviews it was disclosed that accessing bulk buyers (processors) and finding out the prices they offered was a challenge. Brokers employ various tactics in reducing the prices to be paid to farmers including misinforming the buyers. This is mainly because most farmers bring their chicken and chicken products to the market without carrying out a market survey and coming to some form of agreement with an identified buyer. Since the brokers know that once the farmer comes with his produce to the market he cannot take it back home, they take advantage of this by putting the farmer in a disadvantaged position of being a mere price taker. Without proper market information, farmers cannot be able to negotiate for the best possible price and therefore inequity in profit share where the broker reaps much profit at the expense of the farmer.

The findings indicate that little attention is given to indigenous chicken market infrastructure. This is because there is no slaughter or processing facilities for indigenous chicken in the region. In addition there is no special market such as a sales yard set aside for indigenous chicken marketing. This is evidenced by majority of farmers who sale their chicken at farm level, open air markets and roadside. As a result, marketing inefficiency and poor distribution resulting to price differentiation in different parts of the county where price of chicken in rural areas is very low compared to the prices offered in per urban and urban areas of the same county.

A very small number of farmers have information on contract farming and therefore very few are contracted farmers. The findings also indicate that contract farming has a great level of significance to marketing efficiency of indigenous chicken value chain therefore there is need for relevant actors in the indigenous chicken value chain to embrace contract farming. In addition, the results indicate that production cost has least significant on marketing efficiency. This implies that most farmers in the county have access to viable factors of production and at reasonable prices.

5.2 Recommendations

1. The study made a number of recommendations in regard to the research findings. It is recommended that marketing information access by farmers ought to be enhanced to ensure farmers have adequate information and make informed decisions in regard to marketing. This could be ensured through generating a buyer” directory by listing the names and contacts of buyers which will be availed to farmers to form part of information needed in market survey. An electronic directory should be maintained at the county level where any buyer wishing to purchase to be registered and contacted on regular basis for their price offers. This information should be availed to farmers through sms where they are given different prices offered by different buyers. This calls for need to embrace use of telephone technology as an information link since is affordable and widely used, therefore, telephone companies should boast network in the remote areas to enhance smooth communication.

2. Infrastructural development is noted as an important policy issue that needs to be addressed so as to minimize transaction costs faced by indigenous chicken farmers and to increase market access by farmers. One policy imperative is to develop rural road infrastructure and establish slaughter houses or processing factories and indigenous chicken sale yards closer to farmers so as to provide quick markets. This

can be achieved through inviting the private sector to establish such facilities and to offer them incentives such as tax rebates. Domestic marketing should also be enhanced through establishing market days for indigenous chicken at different sale yards established in different regions of the county where buyers from different regions can access poultry products on such days.

3. Contract farming should be embraced by farmers and other stake holders to ensure a steady market for the indigenous chicken by farmers. This can be enhanced through creation of linkages between farmers and contracting companies by extension agents. In case where farmers don't have enough stock contracting can be achieved through group marketing by farmers to the contracting companies.

4. There is need to reduce production cost by indigenous poultry farmers to ensure farmers get optimal profit from their produce. This can be achieved through offering subsidies by the government to farm inputs e.g feeds and veterinary services. Farmers should also be encouraged to make their own feeds through using the locally available feeds materials i.e on farm feed formulation. This calls for capacity building to farmers by the extension officers on such technologies which reduces production cost.

5.3. Suggestions for further study

The study suggested areas for further studies in relation to indigenous chicken value chain marketing efficiency among small scale farmers of Baringo county. These include studies on the following topics:

1. Role of the county and national government in enhancing indigenous chicken marketing efficiency
2. Effects of group marketing on indigenous chicken marketing efficiency
3. Influence gender issues on indigenous chicken marketing efficiency

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APPENDICES

APPENDIX1: LETTER OF CONSENT

Belphine Nafula Nyanja

M.A Project Planning and Management

University of Nairobi

TO WHOM IT MAY CONCERN

Dear Sir,

REF: REQUEST FOR INFORMATION

I kindly request you to provide me with information through answering the questions in the attached questionnaire. I am a post graduate student undertaking a Master of Arts Degree in Project Planning and Management from the University of Nairobi. I am undertaking a research on “Assessment of Factors Influencing Indigenous Chicken Value Chain Marketing Projects Efficiency among Small Scale Farmers in Baringo County: Case of Mogotio Sub county. Kindly respond to questions and statements honestly. All information will be treated as confidential and will only be used for the purpose of this study which is academic in nature. Please do not indicate your name.

Thank you

Yours Faithfully,

Belphine Nyanja

M.A PPM

University of Nairobi

APPENDIX II: SURVEY QUESTIONNAIRE

ASSESSMENT OF FACTORS INFLUENCING INDIGENOUS CHICKEN VALUE CHAIN MARKETING PROJECTS EFFICIENCY AMONG SMALL SCALE FARMERS IN BARINGO COUNTY, CASE OF MOGOTIO SUB- COUNTY

SECTION I: BACKGROUND INFORMATION

(Please tick where appropriate and write your answers in the gaps provided)

- 1) What is your gender? Male () Female ()
- 2) What is your age in years?
 - i) 18-35 () ii) 35-45 () iii) 45-55 () iv) 55-65 () v) 65-75 ()
 - vi) Above 75 ()
- 3) What is your highest education level?
 - i) Primary () ii) Secondary () iii) Middle level college () iv) Undergraduate ()
 - v) Postgraduate ()
- 4) Which of the following best describes your position?
 - i) Farmer () ii) Livestock Officer () iii) Veterinary Officer ()
 - iv) Agro dealer ()
 - v) Microfinance Officer () vi) Working with NGO () Any other ()

please specify.....
- 5) How long have you lived/operated in Mogotio Sub-County?
 - i) Less than one year () ii) 1-5 years () iii) 6 – 10 years ()
 - iv) More than 10 years ()

- a) In which ward of Mogotio Sub-county do you normally conduct your business?
- b) What is the total number of indigenous chicken do you keep?
- i) 1-20 chicken ()
 - ii) 21-40 chicken ()
 - iii) 41-60 chicken ()
 - iv) 61-80 chicken ()
 - v) Above 80 chicken()
- c) How do you market your poultry /poultry products
- i) Farm level ()
 - ii) Open air market ()
 - iii) Hotel ()
 - iv) Supermarket ()
 - v) Roadside selling ()
 - vi) Integrator/contracted firm ()
 - vii) Any other (Please specify).....
- d) What is the distance from your farm to the nearest market where you sale your poultry/poultry products
- i) Less than 1km () ii) 1-3 km () iii) 4-6km () iv) 7-10km ()
 - v) More than 10km ()
- e) How do you determine price for your poultry/poultry products
- i) Negotiation with the buyer
 - ii) Fixed
 - iii) According to prevailing supply and demand
 - iv) Any other () Please specify.....

SECTION II: ACCESS TO MARKET INFORMATION

The statements in the following sections seek responses on a 5-point scale as follows:

1: Strongly Disagree, 2: Disagree, 3: Neutral, 4: Agree, 5: Strongly Agree

	SA	A	N	D	SD
i. Indigenous chicken farmers have access to information on available markets for indigenous chicken					
ii. The poultry farmers are regularly trained on using market information to sale their poultry products					
iii. There are regular farming field days and workshops on poultry management and marketing					
iv. Farmers are able to use mobile technology to reach buyers for their chicken and supplier of their feeds					
v. There is regular follow up on farmers to train them on new markets, trends on prices and quality requirements					
vi. Farmers are usually informed about prices at different markets					

a) Are you aware of any existing market information system available on poultry/poultry products?

b) If yes how often do you/do farmers make use of it (If No go to b)

i) Regularly () ii) Rarely () iii) Never ()

c) How do you access market information?

i) Radio ()

ii) Traders/brokers ()

iii) Social media ()

iv) Agricultural extension staff ()

v) Agricultural information system/Internet ()

vi) Any other (Please specify).....

SECTION III: CONTRACT FARMING

(Please tick where appropriate and write your answers in the gaps provided)

a) Are you aware of contract farming? Yes () No ()

b) Who introduced you to contract farming?

c) How often are farming contract agreements signed in your area of operation?

Not aware () Yearly () every two years () above two years ()

d) Are you aware of any contracted farmer in your area?

Yes () No ()

e) Are you a contracted farmer?

Yes () No ()

f) If yes, how often do you receive payments from contracting companies? If No

go to g

Every month () 2 -3 months () 4-5 months () over 6 months ()

g) Are you comfortable with contract farming agreements?

Yes () No ()

h) Explain the reasons for your answer given in (e) above

The statements in the following sections seek responses on a 5-point scale as follows:

1: Strongly Disagree, 2: Disagree, 3: Neutral, 4: Agree, 5: Strongly Agree

	SA	A	N	D	SD
vii. Farmers have enough chicken stocks or numbers to sustain the contract supply agreement					
viii. There are signed agreements between the farmers and contracting companies to supply indigenous poultry					
ix. The predetermined poultry prices are favorable for indigenous poultry farmers compared to local market					
x. There is a company policy to ensure indigenous poultry farmers supply quality indigenous chicken products					
xi. The contract agreements between farmers and contracting companies are always honored					
xii. The contracting companies train farmers on quality requirements and supply them with some inputs e.g feeds					

SECTION IV: PRODUCTION COSTS

The statements in the following sections seek responses on a 5-point scale as follows:

1: Strongly Disagree, 2: Disagree, 3: Neutral, 4: Agree, 5: Strongly Agree

	SA	A	N	D	SD
xiii. The cost of feeds and vaccines are affordable and available to poultry farmers					
xiv. There is extension services and training of farmers on poultry production by ministry of Agriculture, Livestock& Fisheries					
xv. Farmers are trained on poultry diseases, hygiene and management of poultry production					
xvi. The poultry production information is readily available to farmers					
xvii. The agro-supply companies train farmers on use of vaccines for their poultry					

g. What are your opinions on poultry production cost management to ensure continued delivery of quality indigenous chicken and their products-----
-----?

SECTION V: MARKET INFRASTRUCTURE

The statements in the following sections seek responses on a 5-point scale as follows:

1: Strongly Disagree, 2: Disagree, 3: Neutral, 4: Agree, 5: Strongly Agree

	SA	A	N	D	SD
xviii. The open air markets offer better prices for indigenous chicken and their products					
xix. Farmers sell indigenous chicken to hotels and institution in various towns					
xx. There are indigenous chicken slaughtering, processing and packaging facilities for value addition					
xxi. Farmers are able to access export markets through the contract farming agreements					
xxii. There are transport networks connecting various markets which are reliable and conducive for indigenous chicken					

- a. What are the ways indigenous poultry farmers can enhance existing poultry market niches for better incomes-----
?

- b. What are your suggestions on indigenous poultry value addition improvement to get better prices-----?

SECTION VI: POLITICAL INFLUENCE

The statements in the following sections seek responses on a 5-point scale as follows:

1: Strongly Disagree, 2: Disagree, 3: Neutral, 4: Agree, 5: Strongly Agree

	SA	A	N	D	SD
i. The local leaders influences the marketing of indigenous chicken to external buyers					
ii. Political differences among indigenous poultry farmers affects indigenous poultry production and marketing					
iii. Local politics affects distribution of resources to poultry farmers especially subsidized inputs					
iv. Indigenous poultry farmer group officials influences how the group negotiates for contract farming and pricing of chicken					
v. Local politics influences construction of transport networks connecting various markets and farmers					

In your own opinion, state how politics influence indigenous chicken marketing?

.....

.....

.....

SECTION VII: SUSTAINABILITY OF MARKETING PROJECTS

The statements in the following sections seek responses on a 5-point scale as follows:

1: Strongly Disagree, 2: Disagree, 3: Neutral, 4: Agree, 5: Strongly Agree

	SA	A	N	D	SD
i. The local poultry farmers have access to better and efficient chicken markets					
ii. The farmers experience reduced poultry production costs and therefore make profit from selling chicken					
iii. Local poultry farmers have viable contract farming agreements with the buyers and sellers					
iv. There are better market structures and facilities to enable farmers earn better income from selling chicken					
v. Farmers are compensated whenever they do not meet the agreements to supply certain number or quality of chicken due to natural calamities or disease outbreaks					



UNIVERSITY OF NAIROBI
COLLEGE OF EDUCATION AND EXTERNAL STUDIES
SCHOOL OF CONTINUING AND DISTANCE EDUCATION
DEPARTMENT OF EXTRA - MURAL STUDIES

Tel 051 - 2210863

P. O Box 1120, Nakuru
30th May 2016

Our Ref: UoN/CEES/NKUEMC/1/12

To whom it may concern:

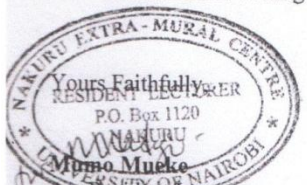
RE: BELPHINE N. NYANJA L50/76706/2014

The above named is a student of the University of Nairobi at Nakuru Extra-Mural Centre Pursuing a Masters degree in Project Planning and Management.

Part of the course requirement is that students must undertake a research project during their course of study. She has now been released to undertake the same and has identified your institution for the purpose of data collection on "Assessment of factors affecting indigenous chicken value chain marketing efficiency among small scale farmers of Baringo county: case of Mogotio sub county."

The information obtained will strictly be used for the purpose of the study.

I am for that reason writing to request that you please assist her.


Yours Faithfully,
RESIDENT LECTURER
P.O. Box 1120
NAIROBI
Mumo Mueke
RESIDENT LECTURER
Nakuru Extra-Mural Centre

APPENDIX IV: AUTHORIZATION LETTER FROM NACOSTI



NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY AND INNOVATION

Telephone:+254-20-2213471,
2241349,3310571,2219420
Fax:+254-20-318245,318249
Email:dg@nacosti.go.ke
Website: www.nacosti.go.ke
when replying please quote

9th Floor, Utalii House
Uhuru Highway
P.O. Box 30623-00100
NAIROBI-KENYA

Ref. No.

Date:

NACOSTI/P/16/41341/12832

18th August, 2016

Belphine Nafula Nyanja
University of Nairobi
P.O. Box 30197-00100
NAIROBI.

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on "*Assessment of factors influencing indigenous chicken value chain marketing among small scale farmers of Baringo County, Kenya: Case of Mogotio Sub County,*" I am pleased to inform you that you have been authorized to undertake research in Baringo County for the period ending 9th August, 2017.

You are advised to report to **the County Commissioner and the County Director of Education, Baringo County** before embarking on the research project.

On completion of the research, you are expected to submit **two hard copies and one soft copy in pdf** of the research report/thesis to our office.

GODFREY P. KALERWA MSc., MBA, MKIM
FOR: DIRECTOR-GENERAL/CEO

Copy to:

The County Commissioner
Baringo County.

The County Director of Education
Baringo County.

APPENDIX V: RESEARCH PERMIT

THIS IS TO CERTIFY THAT: MISS. BELPHINE NAFULA NYANJA Permit No. : **NACOSTI/P/16/41341/12832**

of UNIVERSITY OF NAIROBI, 115-20105 Date Of Issue : **19th August,2016**

mogotio,has been permitted to conduct Fee Received :**ksh 1000**

research in Baringo County

**on the topic: ASSESSMENT OF FACTORS
INFLUENCING INDIGENOUS CHICKEN
VALUE CHAIN MARKETING AMONG
SMALL SCALE FARMERS OF BARINGO
COUNTY, KENYA:CASE OF MOGOTIO
SUBCOUNTY**

**for the period ending:
9th August,2017**

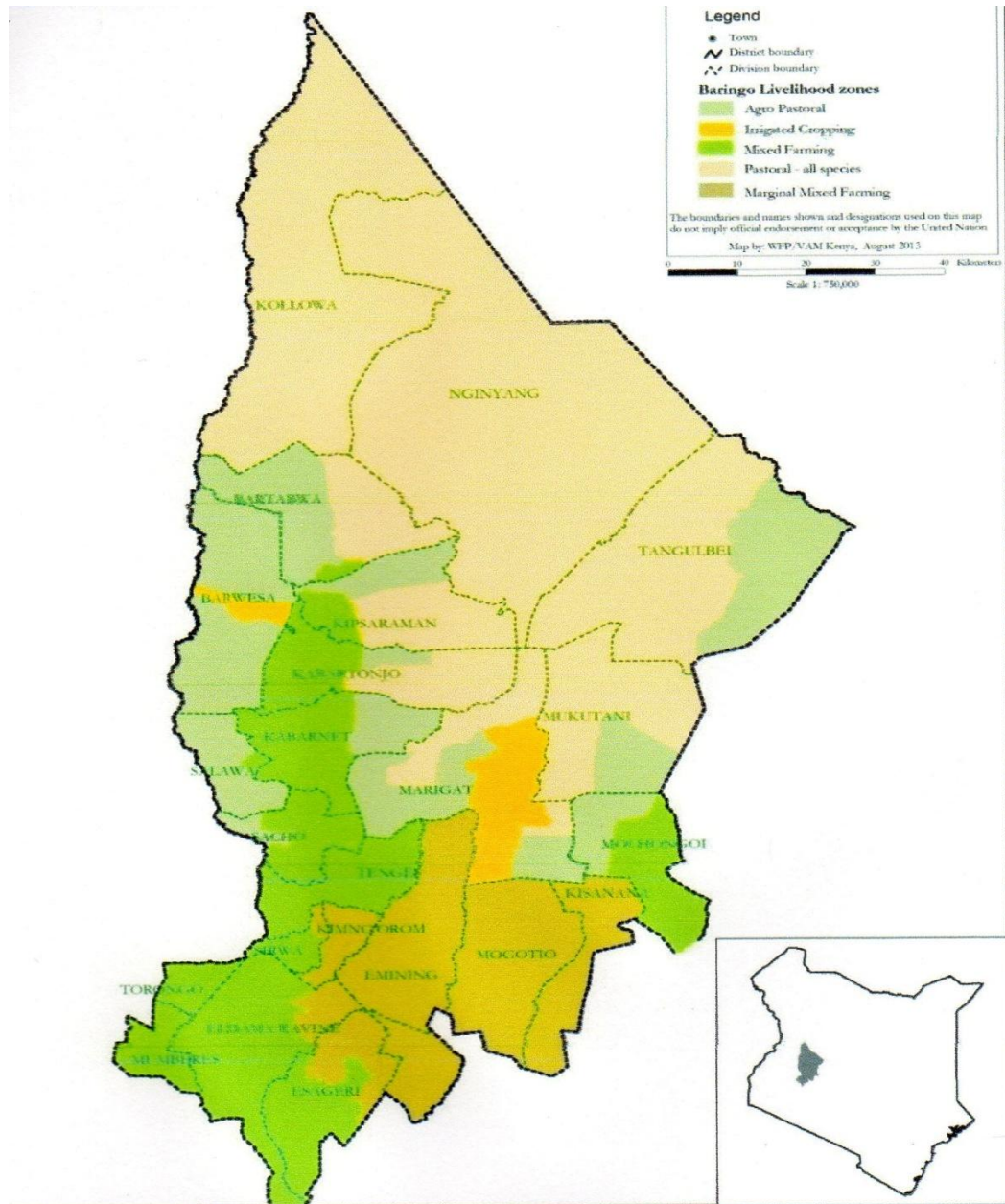


**Applicant's
Signature**

Director General

**National Commission for Science,
Technology & Innovation**

APPENDIX VI: BARINGO COUNTY MAP(STUDY AREA)



Source: Baringo county Governor’s office

