

Improving access to market information for smallholder indigenous chicken farmers, the case of Misungwi district, Tanzania.



By

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September 2018, The Netherlands

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MSc. in Agricultural Production Chain management,
Specialization Livestock Chains.**

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Dedication

I dedicate this research work to Almighty God for leading me to complete my research and to my family especially my lovely mother and brother and sisters for their support towards the success of this research. I love you all.

Table of Contents

Acknowledgements	i
Dedication	ii
List of Figures	v
List of Tables	vi
List of Abbreviation	vii
Abstract	viii
CHAPTER ONE: INTRODUCTION	1
1.1 Background	1
1.2 Problem statement	2
1.3 Problem owner	2
1.4 Justification of the study	2
1.5 Research objective	2
1.6 Research question	3
1.6.1 Main questions	3
1.6.2 Sub-questions	3
1.7 The conceptual framework	3
1.8 Definition of concepts	4
CHAPTER TWO: LITERATURE REVIEW	5
2.1 An overview of the Indigenous chicken sector in Tanzania	5
2.1.1 Indigenous chicken population	5
2.1.2 Indigenous chicken value chain and marketing	6
2.2 Market information	7
2.3 Role of information	8
2.4 Kind of market information	8
2.5 Sources of market information for smallholder farmers	8
2.6 Provision of market information	9
2.7 Constraints facing by smallholder farmers in accessing indigenous chicken market information	9
CHAPTER THREE: RESEARCH METHODOLOGY	10
3.1 Description of the study area	10
3.2 Research strategy	11
3.3 Research framework	11
3.4 Data collection and processing	12
3.4.1 Desk research	12
3.4.2 Survey	12

3.4.3 Interview	12
3.4.4 Sample selection and size	15
3.5 Data analysis	15
3.6 Limitations of the research	15
CHAPTER FOUR: RESULTS	16
4.1 Results from the survey with smallholder chicken farmers	16
4.1.1 Basic Information of respondent	16
4.1.2 Kind of information	19
4.1.3 Source of accessing market information	21
4.1.4 Market information cost	23
4.1.5 Constraints facing farmers in accessing market information of the indigenous chicken .	24
4.1.6 Ways to improve access to market information of the indigenous chicken	25
4.2 Result from the Interview	26
4.2.2 Interview with chicken traders	26
4.2.3 Extension officers	26
CHAPTER FIVE: DISCUSSION	27
5.1 Existing market information reach smallholder chicken farmers currently in the district	27
5.1.1 Kind of market information	27
5.1.2 Sources of market information	27
5.2 Constraints facing smallholder chicken farmers in accessing market information	28
CHAPTER SIX: CONCLUSIONS AND RECOMMENDATIONS	29
6.1 Conclusion	29
6.1.1 Current market information smallholder chicken farmers can reach in the district	29
6.1.2 Constraints facing smallholder chicken farmers in accessing market information	29
6.2 Recommendations	29
Reference	31
APPENDICES	36

List of Figures

Figure 1: Conceptual framework	4
Figure 2: Chicken population trend	6
Figure 3: Indigenous chicken value chain map	7
Figure 4: Map of Misungwi district in Mwanza region	10
Figure 5: A research framework	11
Figure 6: Age category of interviewed 40 smallholder chicken farmers	17
Figure 7: Farmers experience in keeping the indigenous chicken.....	18
Figure 8: Kind of market information available for smallholder chicken farmers.....	19
Figure 9: The Average price difference between those getting and not getting market price information	20
Figure 10: The Average price difference between villages near and far from the primary market	20
Figure 11: Chicken price determination.....	21
Figure 12: Smallholder chicken farmers awareness towards accessing market information sources .	21
Figure 13: Sources of chicken market information for smallholder chicken farmers	22
Figure 14: Use of a mobile phone to access market information.....	23
Figure 15:Type of cost involved by smallholder chicken farmers.....	23
Figure 16: Constraining factors in communication that affects access in market information.....	24
Figure 17: Constraining factors in infrastructure that affects the accessibility of market information	25

List of Tables

Table 1: Household Raising Indigenous chicken by flock size.....	5
Table 2: Chicken population trend in Mainland Tanzania	6
Table 3: Information/Data and their sources	13
Table 4: Gender of the respondents (N=40)	16
Table 5: Education level of the respondents (N=40)	18

List of Abbreviation

ACGG	African Chicken Genetic Gain
APCM	Agricultural Production Chain Management
DLDF	Department of Livestock Development and Fisheries
ICT	Information and Communication Technology
MIS	Market Information System
MLDF	Ministry of Livestock Development and Fisheries
NBS	National Bureau Statistics
NFP	Netherlands Fellowship Programme
SPSS	Statistical Package for Social Sciences
TALIRI	Tanzania livestock Research Institute
VEO	Village Executive Officer

Abstract

Access to market information by smallholder chicken farmers is most important for involving in the chicken market. In chicken value chain the one with skills and well equipped more making profits. Most of the indigenous chicken producers are rural smallholder chicken farmers. Most of the rural farmers lack market information about their chicken. Due to lack access to market information such as the price of the chicken at the markets, quality, and quantity of the chicken required at the markets, smallholder chicken farmers negotiate on prices of their chicken based on the information provided by village middlemen/traders. This issue significantly reduces the bargaining power of smallholder chicken farmers. This study aims to identify constraints facing smallholder chicken farmers in Tanzania to access market information using smallholder chicken farmers in Misungwi district as a case study. This study was carried out in four purposefully selected villages in Misungwi district, Mwanza region. This study used a sample size of forty respondents. The study employed a survey, interview and desk study research design and both qualitative and quantitative research approaches were used. Information was gathered by using documentary review, interviews through structured questionnaires that focus on kind of information, the source of information, market information accessibility, and constraints in accessing market information. Other stakeholders were interviewed including four traders, four middlemen, and two extension officers. Quantitative were analysed by using SPSS and Microsoft Excel Spread Sheet, while qualitative data were analysed using content analysis procedure. The result of the study revealed that the constraints to accessing market information in the study area are associated with the lack of information services, inadequate number of extension officers, high illiteracy, lack of awareness of the market information services and lack of means and facilities by which information can be easily accessible (limited accessibility of information). It is therefore suggested that there is a need for Misungwi district council to place more weight on better practices on access to relevant, current and appropriate market information to smallholder chicken farmers and distribute information to them.

CHAPTER ONE: INTRODUCTION

1.1 Background

Indigenous chicken keeping has been part of human development for centuries and continues to play a vital role in rural livelihoods, especially those living in remote areas and poorer communities in developing countries (Alders and Pym 2009). Indigenous chickens are the most commonly kept and most numerous livestock species in Africa (Moreki et al., 2010). This is due to advantages over other species of livestock which include short generation interval, prolificacy, low initial cost, and maintenance cost compared to other livestock, adaptive to rural environment, survive on little or no inputs and adjust to fluctuations in feed availability (Mengesha, 2012). Another advantage is their fast reproductive rates, ability to be raised even under limited land spacing per household. However, their production is still relatively weak due to inadequate skills in management. Indigenous chickens widely distributed in the rural and peri-urban areas where they play the vital role in income generation, food production, and social aspect.

According to the Agriculture Sample Census of 2008, the estimated population of poultry in Tanzania had about 43.7 million chicken of which 41.9 million (96%) were indigenous chicken. These statistics show that indigenous chicken production system appears to be the largest compared to the commercial chicken production system. These provide almost all the poultry meat in the rural areas and also contributes nearly 100% and 20 % eggs consumed in rural and urban areas respectively (MLDF, 2012; Guni et al., 2013). Smallholder chicken farmers raise almost 90 percent of the indigenous chicken in the rural areas under the traditional free-range system. The flock sizes mostly range from 10 – 20 chicken with an average of 15 chicken per household making it challenging to have a viable commercialized indigenous chicken enterprise. On the other hand, the demand for the indigenous chicken has been increasing and yet the supply side has continued to depend mainly on these smallholder chicken farmers.

Indigenous chickens are reared under different production systems, mainly scavenging, semi-intensive system and to a lesser extent intensive systems. The free-range system is dominant in most rural areas and has been practised for many years in Africa (Mutayoba et al., 2012). Most research attempts on local chicken have focused on increased production, disease management and marketing (Mwalusanya et al. 2002). In different circumstances, there is an increase in demand for indigenous chicken meat and eggs in Africa particularly in Tanzania, and yet the supply side has continued to depend mainly on these smallholder chicken farmers. In this regard, the increased demand, need to be matched with market information which plays a vital role for most smallholder chicken farmers to anticipate to the market by their production of indigenous chicken and making choice of the market segment.

Market information is essential in determining marketing behaviour for farmers. Accessing the market information is crucial for smallholder farmers' improvement as it creates demand, offers better prices and improving smallholder incomes (Lee and Suzuki, 2015). In tackling problems of inaccurate information or information asymmetries, several African countries established the market information systems (MIS) to serve to provide market prices to market actors (Muto, 2013). Improvement in market information access can be achieved by coordinating necessary market players and supporting services (Magesa et al., 2014).

Majority of the rural smallholder farmers in developing countries have difficulty in accessing market information (Matovelo, 2008). Ferris (2005) found that in most African countries lack accurate and relevant agricultural information by smallholder farmers is a significant factor constraining efforts to improve the agriculture sector. Low return of smallholder farmers of their products associated with lack of access to the market information (Roy, 2012, Eskola, 2005). This study, therefore, aims to identify constraints facing smallholder chicken farmers to access market information.

1.2 Problem statement

Access to chicken market information for smallholder chicken farmers is essential for participating in the chicken market. Smallholder chicken farmers in most of the developing countries find it difficult to access market information because of numerous constraints and barriers. There is inadequate access to the market information for smallholder chicken farmers of Misungwi district on market conditions, prices and the quality attributes of their produce required at the market. Due to lack of market information such as price, quality, and quantity of chicken needed at the market, smallholder chicken farmers negotiate on market prices of their chickens based on the information provided by traders. This significantly reduces the bargaining power of smallholder chicken farmers.

1.3 Problem owner

Misungwi district council (DLDF)

1.4 Justification of the study

The agricultural sector employs majorities in Tanzania, and it contributes significantly to the community development. Indigenous chickens are essential in most rural Tanzania areas. Given the importance of chickens in household income of smallholder chicken farmers of Misungwi district, unlikely, majorities of the smallholder chicken farmers are living in remote rural areas and thus lack appropriate access to market information for their produce. There is a need to identify existing market information and constraints restricting smallholder chicken farmers in accessing market information. The results from this study will assist Misungwi district council to encourage smallholder chicken farmers to adopt the appropriate means of obtaining relevant market information which will help them in strengthening their bargaining power in selling their chicken.

1.5 Research objective

To identify constraints facing smallholder chicken farmers to access market information in order to recommend to Misungwi district council the possible ways of improving the accessibility of market information for smallholder chicken farmers which will increase their bargaining power in the market of the indigenous chickens.

1.6 Research question

1.6.1 Main questions

1. What existing market information does reach smallholder chicken farmers currently in the district?
2. What are the factors affecting smallholder chicken farmers' access to indigenous chicken market information?

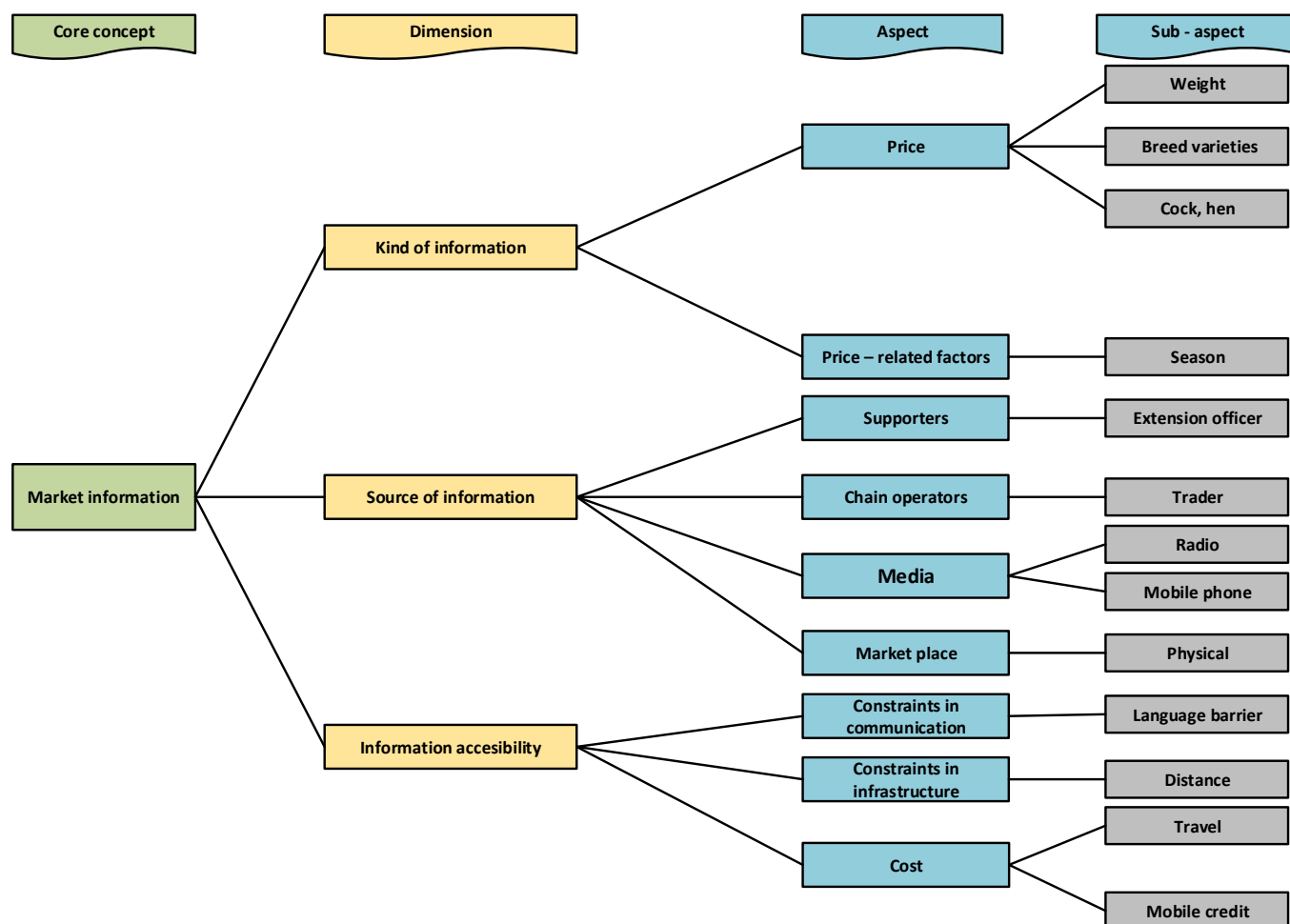
1.6.2 Sub-questions

- 1.1. What market information is available that is relevant to smallholder chicken farmers in the district?
- 1.2. What kind of information does smallholder chicken farmers reach?
- 1.3. How does smallholder chicken farmers reach market information?
- 2.1. What constraining factors in communication affect the accessibility of market information for smallholder chicken farmers?
- 2.2. What are constraining factors in infrastructures affect smallholder chicken farmers in accessing market information?
- 2.3. What cost incur for smallholder chicken farmers to access market information?
- 2.4. In what ways access the market information for smallholder chicken farmers can be improved?

1.7 The conceptual framework

The core concept of the study is market information, looking at three dimensions. Two dimensions are looking at the current existing market information which can reach smallholder chicken farmer. First, kind of market information in the relation of price and price-related factors, the second dimension is a source of market information where smallholder chicken farmers can reach either through the marketplace, media or supporters. The last dimension is information accessibility considering constraining factors affects smallholder chicken farmers in accessing market information, looking at communication, infrastructure, and cost. The two main questions and sub-questions illustrated in the conceptual framework below (Figure 1).

Figure 1: Conceptual framework



Source: Researcher, 2018

1.8 Definition of concepts

Bargaining power: “The means to influence the price or terms of a business transaction that enables farmers to negotiate for better prices and conditions, such as a long-term supply agreement or access to business services. Bargaining power depends on many different factors, but the most important is scarcity, the availability of alternative marketing options and market information’s” (Kahan, 2004).

Market information: “A continuing and interacting structure for the regular presentation of information for use in marketing decisions. Smallholder farmers need accurate information for making the right choices for changes in the production system/practices and selling their produce” (KIT and IIRR., 2008).

Smallholder indigenous chicken farmer: is a farmer with low asset base and who regularly earns cash throughout the year resulting in improved living standards and have access to less than fifty (50) indigenous chicken.

CHAPTER TWO: LITERATURE REVIEW

2.1 An overview of the Indigenous chicken sector in Tanzania

Indigenous chicken in developing countries consists of domestic fowls (*Gallus domesticus*) variously referred to as local, indigenous or rural chickens, village chickens and or native chickens (Moreki *et al.*, 2010). Indigenous chickens are the main type of rural poultry kept in low input production systems, as free-range scavengers with some extra feeding of household scraps or locally produced grains. They are kept for home consumption or sold for cash (Queen *et al.*, 2016).

Furthermore, indigenous chicken is mainly owned and managed by women and are often essential elements of female-headed households (Ochieng *et al.*, 2011). Okitoi *et al.* (2007) reported that women and children did daily routines in indigenous chicken management while men are involved in activities such as the purchase of inputs and sale of chickens. In Nigeria, Kwaghe *et al.* (2009) reported that indigenous chicken is the third most main income generating opportunity in influencing women's income.

2.1.1 Indigenous chicken population

The productivity of indigenous chicken is low due to poor management practices which include health management, nutrition, and housing. Hens start laying at first at the age ranges between 6 to 8 months and in average hens have three laying cycles per year. Indigenous chicken average live weight is 1.9kg for cocks and 1.4kg for hens respectively (Mwalusanya *et al.*, 2002).

According to Goromela (2009), the indigenous chickens contribute significantly to household food security and income in Tanzania. Citing the Agriculture Sample Census of 2008, many households in Tanzania kept chicken especially the native ones or crosses with either layer or broiler types (hereafter referred to as local). In Tanzania Mainland, a total of 3,703,273 smallholder households out of 3,745,867 households had indigenous chicken. Most of the indigenous chicken keeping households (99%) kept less than 50 chicken per household, and the households accounted for 91.5 percent of the total local chicken population (Table 1).

Table 1: Household Raising Indigenous chicken by flock size.

Flock size	Number of households	%	Number of Indigenous chicken	%	Number of chicken per household
1 – 49	3 728 714	98.6	38 326 920	91.5	10
50 – 99	47 148	1.2	2 691 593	6.4	57
100 – 299	5 260	0.1	681 761	1.6	130
300 – 499	573	0.0	195 331	0.5	341

Source: NBS (2012)

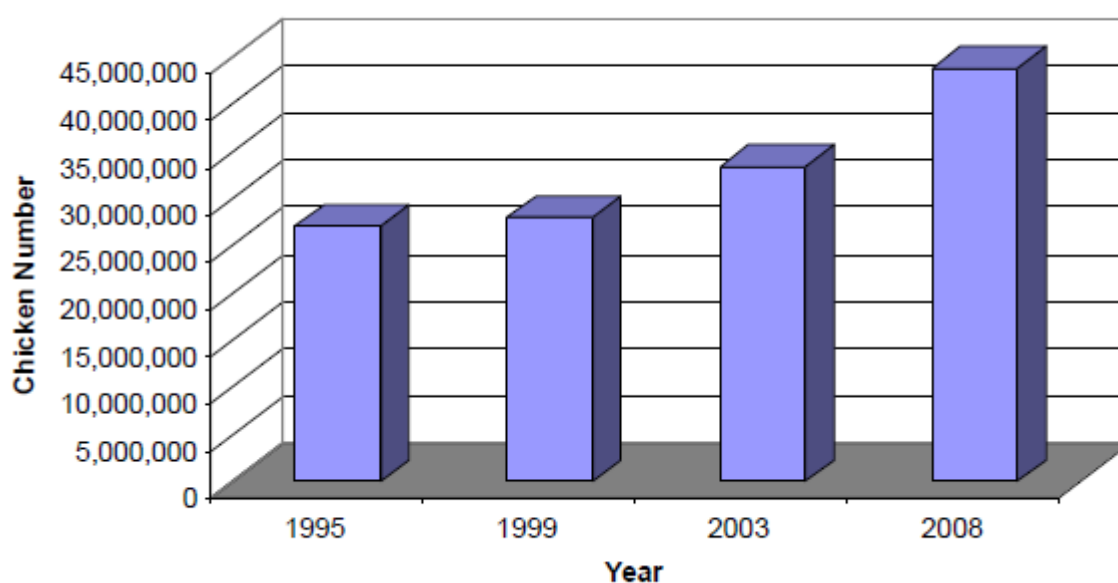
Chicken population trend in Mainland Tanzania indicated that numbers have increased from 26,593,691 million to 41,895,605 from 1999 to 2008 (Table 2). Increase in poultry population is generally low compared to the rise in local demand for poultry meat and eggs in the country (Goromela, 2009).

Table 2: Chicken population trend in Mainland Tanzania

Year	Indigenous chickens	Layers	Broilers	Total
1995	26 593 691	287 691	184 002	27 065 384
1999	26 736 174	724 587	517 147	27 977 907
2003	31 614 837	1 126 697	565 712	33 307 246
2008	41 895 605	1 265 872	584 028	43 745 505

Source: NBS (2012)

Figure 2: Chicken population trend

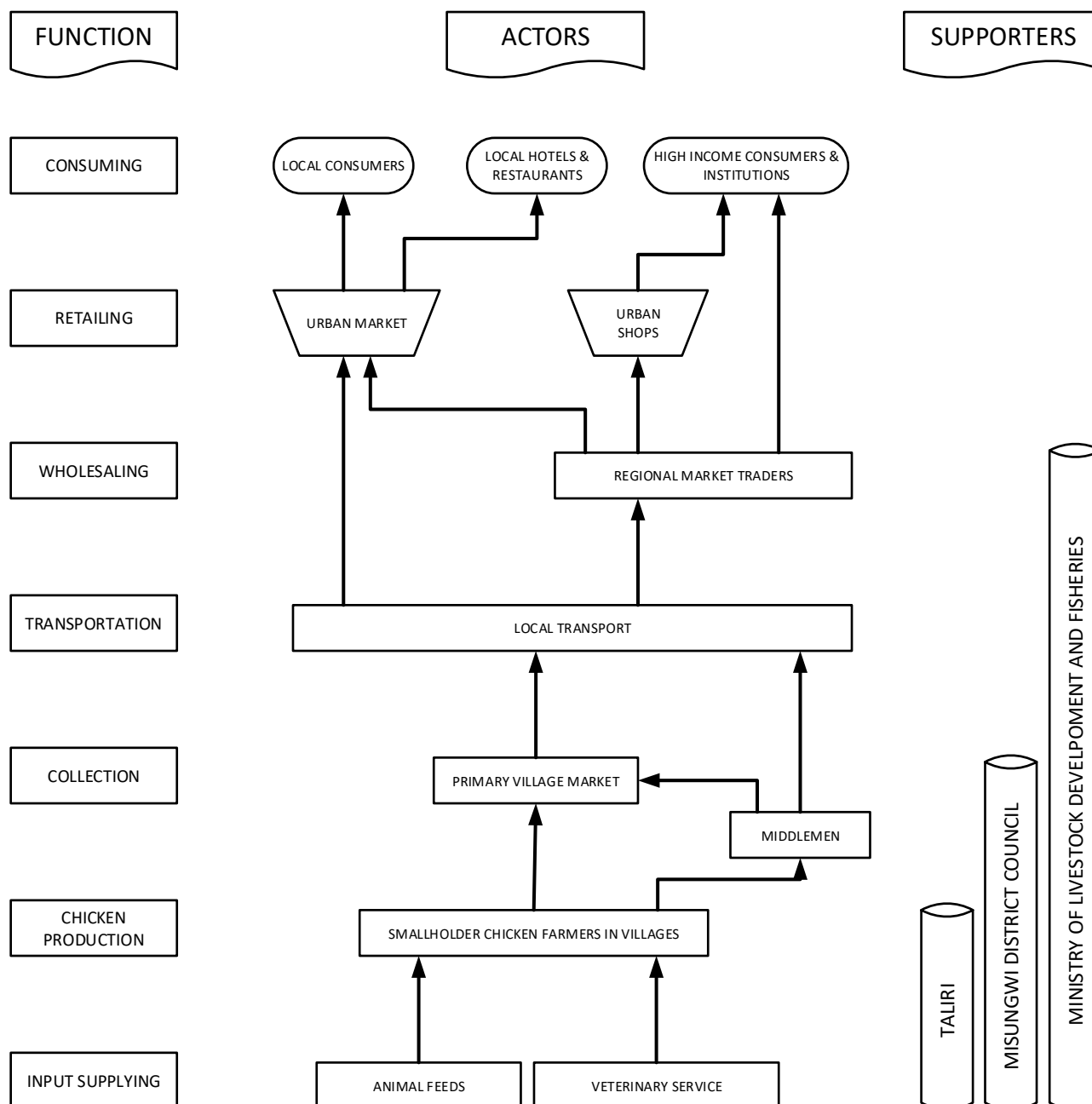


(Source: NBS, 2012)

2.1.2 Indigenous chicken value chain and marketing

According to Roduner (2007), value chains analyse the links and information flows within the Chain and reveals the strengths and weaknesses of the process. The indigenous chicken value chain is generally underdeveloped. The main actors along this value chain are smallholder chicken farmers, primary collectors (middlemen) and live bird traders, wholesalers and retailers. The key marketing channels are from chicken farmer to trader/middlemen or consumer; the other marketing channel is from chicken farmer to retailer and then to the consumer. Some farmers sell chickens directly to restaurants which are at the primary village market while others sell to traders who take chickens to urban markets (wholesalers) (Figure 3). The final, end market of indigenous chickens is domestic consumption through retailers (Bwalya, 2014).

Figure 3: Indigenous chicken value chain map



(Source: Researcher, 2018)

2.2 Market information

Information plays a central role for smallholder farmers to respond to opportunities that could improve their productivity (Nzonzo & Mogambi, 2016). Market information is an important input smallholder farmers use when determining production and marketing behaviour, (ICC 2003). However, the majority of smallholder farmers in developing countries have difficulty accessing market information (Getnet et al. 2011). As rightly expressed by Magesa, Michael and Ko (2014), information enables smallholder farmers to decide what they can produce, when and where to sell, and to negotiate better for the prices.

2.3 Role of information

Information has been a continuously essential element in the development of human society and has designed over an extended period the way in which we think and act (Meyer, 2005). Information is crucial for improving marketing and distribution strategies (Oladele, 2006). Information has advantages to smallholder farmers to make decisions concerning with marketing and production and to be able to succeed in their lives to cope with problems and to grasp their opportunities (Matovelo, 2008; Idiegbeyan-ose Jerome and Theresa, 2009).

2.4 Kind of market information

According to Milovanovic (2014), to improve production, smallholder farmers should have the following information: Information on production equipment and input, information on production techniques and market information. Other information of interest for smallholder farmers' expert advice on their product they produce. However, the type of information that can be provided to meet the information needs of smallholder farmers includes the following;

Price information: As noted by Mittal and Mehar (2012), price information has an impact by improving the bargaining capability of smallholder farmers with traders and better price realization.

Market information: Smallholder farmer needs information on markets and locations. Through access to market information, smallholder farmers could be able to know where to sell their produce. Farmer if provided with market information will take the right decisions thereby contributing to decision making to negotiating better for the prices of their produces. As rightly noted by Magesa, Michael & Ko (2014), due to lack of market information, smallholder farmers are failing to negotiate better on the prices of their produces and thus are paid a little. Use of accurate and timely market information enhances market performance by improving the knowledge of market actors.

2.5 Sources of market information for smallholder farmers

The features of a good information source are accuracy, timelessness, relevance, cost-effectiveness, trustworthiness, usability, exhaustiveness, and aggregation level (Statrasts, 2004). Adhiguru *et al.* (2009) found that smallholder farmers have inadequately accessed information and from fewer sources of information than medium and large Scale farmers. Mtega and Benard (2013) and Ogboma (2010), mention some information sources which includes; newspapers, journals, bulletins, community leaders and farmers groups used by farmers in accessing their agricultural information.

Also, a study by Daudu *et al.* (2009) reported that the primary sources of information used by farmers in accessing agricultural information were extensions agents, friends, Televisions, and Radio. Similarly, Bozi and Ozcatalbas (2010) revealed that family members, neighbour farmer, extension services, input providers and mass media were primary sources of information for Turkish farmers. Preferred sources of information as perceived by the farmers were personal experience, family/Parents and neighbours and or friends. However, the findings revealed that the internet, library and information centres, newspapers and magazines not preferred as the source of information (Dulle and Ngalapa, 2014).

Therefore, given the fact that each farmer prefers specific information sources or channels over others, it is essential to do a thorough study before opting for an information source or channel to address to smallholder chicken farmers in accessing marketing information.

2.6 Provision of market information

Market information products include market news (e.g., information on prices, quantities, market conditions, and business contacts), market analytical reports (e.g., reports that analyze factors that cause changes in market conditions and their effects on stakeholders), and business reports (e.g., providing information that can help stakeholders identify reliable trade partners). Tschirley *et al.* (1995) clearly stated that market information should be a public good according to economists' theories depending on the type of information. According to Shepherd. (1997) Supported this concept by stipulating that the preconditions for a market economy are that correct information on market conditions must be available and accessible to the public. Market information in most developing countries considered as a public good service provided by the government agencies (Ferris, Engoru, and Kaganzi, 2008).

2.7 Constraints facing by smallholder farmers in accessing indigenous chicken market information

Several factors hindering smallholder farmers in accessing agricultural information have identified from some of the studies. For example, Tologbonse *et al.* (2008) found that challenges hindering smallholder farmers in obtaining agricultural information were a language barrier, outdated information, lack of funds to acquire information, lack of awareness on the existence of different information sources and poor format of the.

Furthermore, the study by Daudu (2009) reported some of the difficulties encountered by smallholder farmers in Nigeria in accessing agricultural information. These include financial issues, incomplete or irrelevant information, the inadequacy of facilities/professional.

Also, Byamugisha *et al.* (2008), reported that the constraints encountered by smallholder farmers in Uganda when searching for information as language barriers and lack of cooperation from fellow farmers in sharing agricultural information.

Bernard, Dulle, and Ngalapa. (2014) Revealed that challenges facing farmers in accessing agricultural information were lack of information services, inadequate number of extension agents, insufficient funds, lack of awareness of information services, information not easily accessible and time. Furthermore, mentioned language barrier, poor knowledge-sharing culture, information not current/too old and inadequate relevant materials in offices and libraries as one of the challenges constraining farmers in accessing information.

Likewise, Babu *et al.* (2011) conducted a study on farmers' information needs and search behaviours in Tamil Nadu. The outcomes from this study revealed that the primary constraints facing farmers in accessing information were poor reliability, untimely provision of information, unavailability of information, and lack of awareness of information sources available among farmers.

Furthermore, Mtega and Benard (2013) conducted the study on the state of rural information and communication services in Tanzania. The results from the referred study show that poor/unreliable information infrastructure, low income, high illiteracy levels, lack of electricity and the high cost of ICTs have limited the accessibility of information services in rural areas.

Therefore, from the above-reviewed literature showed that even though the market information have been studied, access to market information for the indigenous chicken farmers, especially in Misungwi, Mwanza Tanzania, have not been adequately addressed. This study seeks to fill the gap.

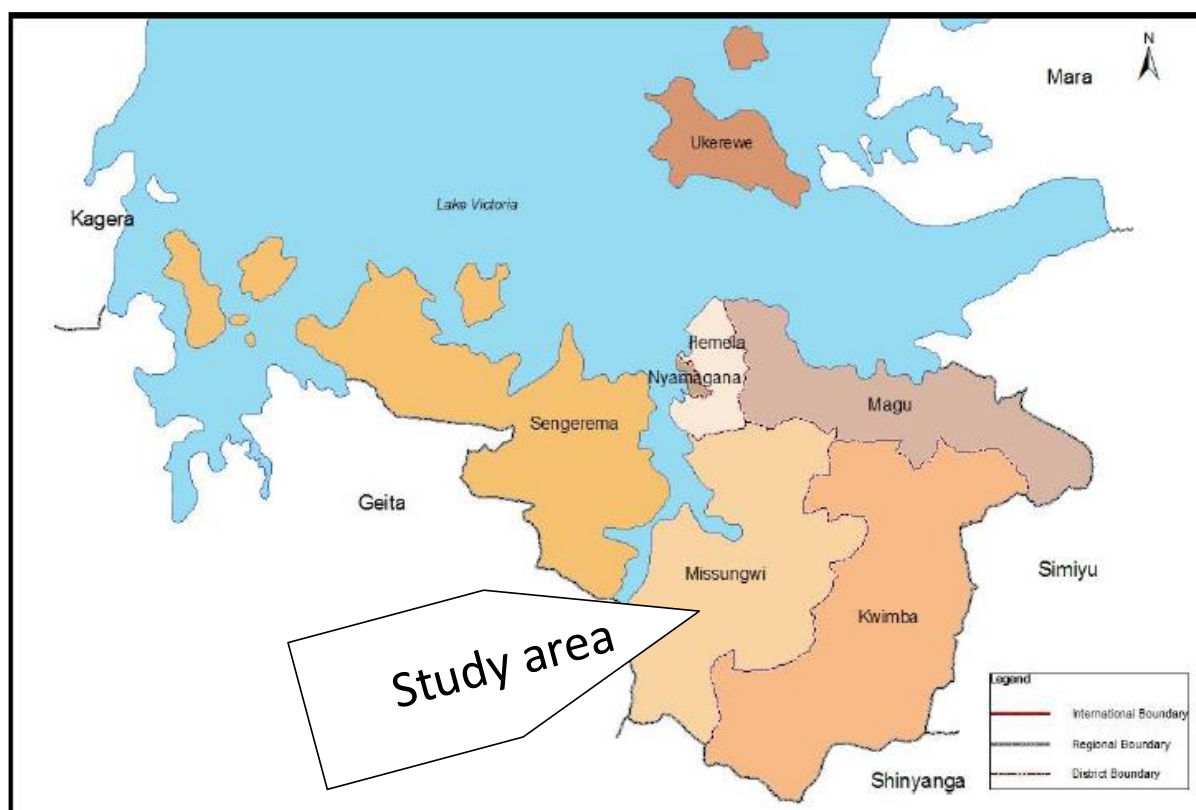
CHAPTER THREE: RESEARCH METHODOLOGY

The methodology focuses on the research study area, research design, research framework, data collection and data analysis.

3.1 Description of the study area

The research was conducted in four villages located in Misungwi district. The district was selected as it is among having a large number of indigenous chicken in Mwanza region. Misungwi is one of the districts located in the Mwanza region on the shores of Lake Victoria (Figure 4). Mwanza Region is in the northern part of Tanzania, located between latitude 10 30' and 30 south of Equator. Longitudinally, the region located between 310 45' and 340 10' east of Green Winch. Misungwi has a population of 351,607 whereas males are 173,997 and females are 177,610, and average household size for It stands at 6.5 (NBS, 2013). It is bordered to the west by Mwanza city, Kwimba district to the East, Magu District to the North, Shinyanga region to the South, and to the South-west by the Geita and Sengerema districts. The main economic activities performed by the Misungwi community are farming and indigenous livestock keeping. The district was selected because had the largest number of chickens (358,133) reared in it (NBS, 2012). The four villages (Mabuki, Mwambora, Kijima, and Nguge) were purposively selected because these are among the areas where smallholder chicken farmers have been supplied with the cockerels from the project of African Chicken Genetic gain (ACGG). This project was under the Tanzania Livestock Research Institute (TALIRI) with the aim of increasing their production and also a market for their products. Moreover, these are among areas with limited access to chicken market information and low income.

Figure 4: Map of Misungwi district in Mwanza region



(Source: NBS, 2013)

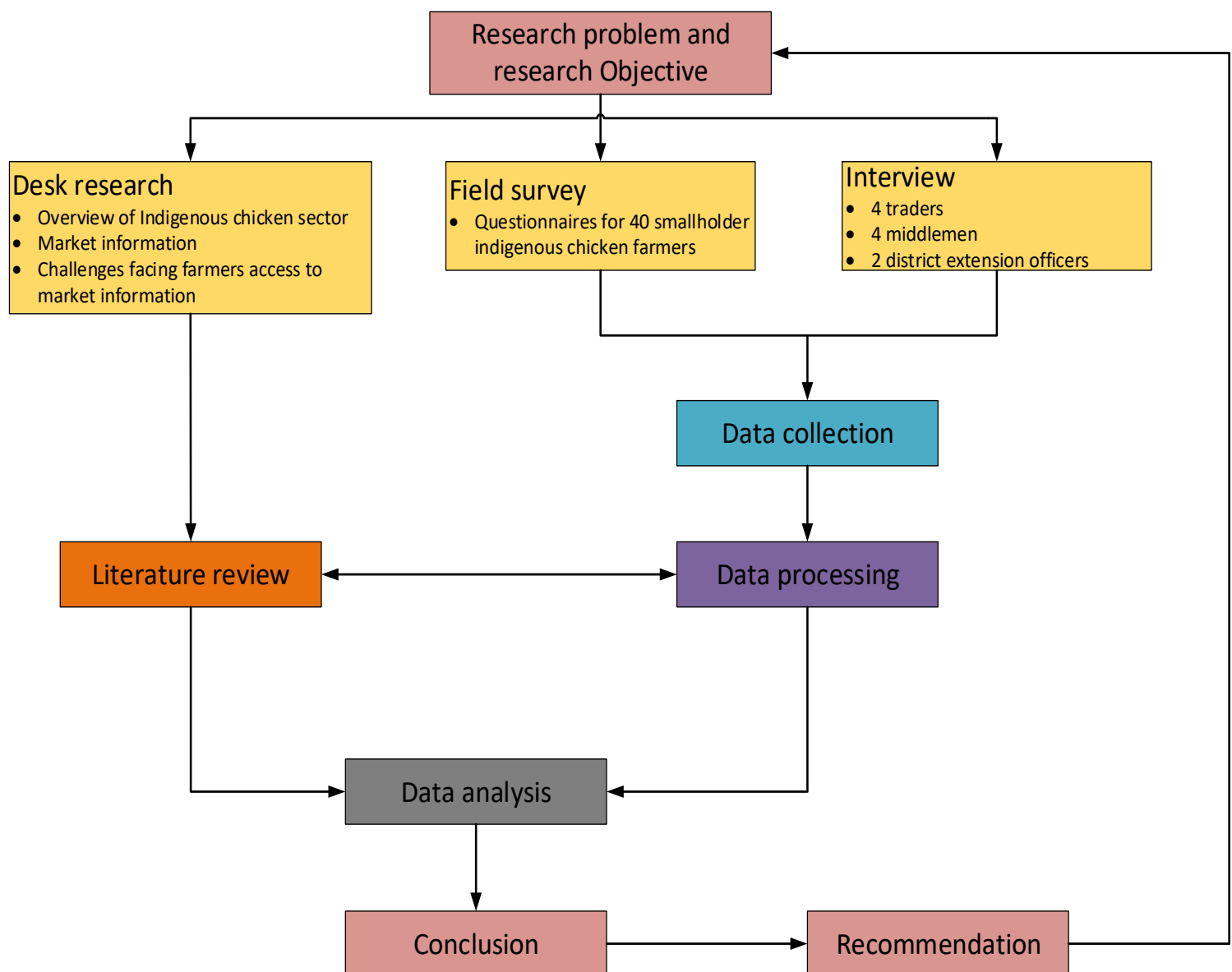
3.2 Research strategy

The study combines both quantitative and qualitative approaches based on empirical data which collected. It comprised of primary and secondary data sources. Primary data collected from the survey and interviews, and also secondary data obtained from desk research through the archival document, journals, reports and internet search.

3.3 Research framework

The research framework was formulated based on the research problem and research objective showing the steps taken in order to achieve the research objective (Verschuren et al., 2010) as shown in the (figure 5) below.

Figure 5: A research framework



Source: Researcher, 2018

3.4 Data collection and processing

3.4.1 Desk research

Desk research was carried out to obtain secondary data from existing literature necessary to establish reliable information for the study. In desk research, the background information related to research, an overview of the indigenous chicken sector in Tanzania, the government services to smallholder farmers, roles of information in livestock, sources of information for smallholder farmers, challenges facing smallholder farmers in accessing market information. Moreover, other related research on access to market information in the area or similar situation was searched. The sources of this literature were scientific journals, government publication, international and national reports such as a report from the department of livestock service, internet websites and other related recent publications.

3.4.2 Survey

The survey was carried out to collect primary data through semi-structured questionnaires which were designed and introduced to smallholder chicken farmers using face-to-face interviews. Forty smallholder chicken farmers were randomly selected from four villages which were Mabuki, Mwambora, Nguge, and Kijima because they do have highest indigenous chicken production as compared to other villages and also distance from the primary village market. Some of smallholder chicken farmers were speaking native language (Sukuma), In this case, there was an enumerator who helped the target group respond to the questions. There were two (2) strata of twenty (20) farmers in each group, in this case, an influence of the distance to the village marketplace was considered. One (1) strata of twenty farmers to represent farmers who are near to the primary village market below 10 km from their households and other 20 farmers who are far to the primary village market above 11 km. The semi-structured questionnaires were used to gather data on market information services obtained from the government, choice of market segment (price and quality attributes). Also, challenges facing farmers accessing to market information of indigenous chicken, and they ranked their answers from the questionnaire (1 to 5) 1=Most important, 5 = least important, and also the distance of the smallholder chicken farmers from their household to the marketplace was accessed to find out the effect of distance on price. The questionnaire was translated in Kiswahili that helped respondent that knew how to read and write filled it by themselves.

3.4.3 Interview

From government officers, a face to face interview was conducted through the use of a checklist that aimed to collect more data about government roles and responsibility in service provision. Also to find out their functions and support to smallholder indigenous chicken farmers to access market information (to determine plans and priorities about indigenous chicken marketing and constraints of improving access to market information for smallholder farmers). Not only that but also to find out the physical infrastructures that are in place to assist smallholder chicken farmers in accessing market information.

Traders and middlemen. The interview concentrated on the experience in the chicken business, current market information sharing within the chain including sources of chicken market information, also selling and buying price of indigenous chicken, also criteria used for chicken price determination and the problems they face in the marketing of indigenous chicken.

Table 3: Information/Data and their sources

Sub-question	Information/Data	Source of information	Method used	Location	Tool for Analysis	Date
1.1	Market information available	Journals, e-journals, websites	Desk research	Misungwi district	Comparing with the field result	25 th June – 30 th June 2018
		Extension officer	Interview	Misungwi district office	Content analysis procedures	23 rd July 2018
1.2	Kind of information does smallholder chicken farmers reach.	Smallholder farmer	Survey	Mabuki, Nguge, Kijima, and Mwambora	SPSS	2 nd July – 14 th July 2018
		Traders and middlemen	Interview	Primary market	Content analysis procedures	16 th July – 22 nd July 2018
		Journals, e-journals, websites	Desk research	Misungwi district	Comparing with the field result	
1.3	Accessibility of market information by smallholder chicken farmers	Smallholder farmers	Survey	Mabuki, Nguge, Kijima, and Mwambora	SPSS	2 nd July – 14 th July 2018
2.1	Constraining factors in communication do affect the accessibility of market information	Smallholder farmer	Survey	Mabuki, Nguge, Kijima, and Mwambora	Excel spreadsheet, SPSS	2 nd July – 14 th July 2018
		Extension officer	Interview	Misungwi district office	Content analysis procedures	23 rd July 2018

2.2	Constraining factors in Infrastructure for smallholder chicken farmers to access market information	Extension officer	Interview	Misungwi district office	Excel spreadsheet, SPSS	23 rd July 2018
2.3	Cost incur for smallholder chicken farmers to access market information	Smallholder farmers	Survey	Mabuki, Nguge, Kijima, and Mwambora	SPSS	2 nd July – 14 th July 2018
		Extension officer	Interview	Misungwi district office	Content analysis procedures	23 rd July 2018
		Journals, e-journals, websites	Desk research	Misungwi district	Comparing with the field result	25 th June – 30 th June 2018
2.4	Ways to improve access market information by smallholder chicken farmers.	Smallholder farmers	Survey	Mabuki, Nguge, Kijima, and Mwambora	Content analysis procedures	2 nd July – 14 th July 2018
		Extension officer	Interview	Misungwi district office	Content analysis procedures	23 rd July 2018

3.4.4 Sample selection and size

In this study, the population consisted of the smallholder chicken farmers, males and females whereby the majority were female who seems to involve with chicken rearing, extension officers from Misungwi district council who are dealing with smallholder chicken farmers, middlemen and travelling traders. This study used both probability and non-probability sampling techniques with a sample size of 50 respondents, comprising of male and female smallholder chicken farmers.

Simple random sampling was employed to select respondents randomly in order to increase validity, reliability, and to reduce bias. The four study villages namely Mabuki, Mwambora, Nguge, and Kijima selected in regarding of distance of the smallholder chicken farmer's households to the primary chicken market. Farmers in all the villages are widely scattered from one another with a distance of as far as of half to one kilometre. The sampling technique was used to select respondent from the group of smallholder chicken farmers. The selection was conducted in the village government office with the collaboration of the village executive officer (VEO) in each village

In each village, there were approximately twenty-five smallholder chicken farmers. On pieces of paper, names were written and then put it in a container, and ten pieces of papers were picked, the smallholder chicken farmer whose name appeared was selected. Therefore each respondent has an equal chance of being selected. The technique was therefore used to select 40 smallholder chicken farmers from four villages; that means 10 smallholder chicken farmer from each village.

Purposive sampling was used to select 10 respondents to gather in-depth information as follows; Four travelling traders at the primary market, one middleman from each village in total four middlemen, two extension officers from the Misungwi district office were purposively selected to gather in-depth information.

3.5 Data analysis

The quantitative data from questionnaires were organized, described, coded and analysed. Statistical Package for Social Sciences version 25 (SPSS) and Microsoft Excel programme was used to derive descriptive statistics such as percentages, averages, frequencies. Independent sample t-test was used to test the difference in average price between smallholder chicken farmers who get a market price before selling their chicken and other who not getting market price information. And ANOVA was used to test mean the average difference between villages far and near to the chicken market. Bar chart and frequency tables were also used in interpreting the results. The qualitative data which was obtained from the interview were analysed using content analysis procedure.

3.6 Limitations of the research

While conducting this research, initially smallholder chicken farmers did not want to speak to the researcher with the reason that several researchers have been visiting them to their villages to conduct research but they are not given feedback at the end.

From these challenges, the researcher had to explain the purpose of the study and the outcomes of the research. Moreover, to assure them that this report would be made available to help them to improve upon their conditions.

Lastly, the language barrier as some farmers preferred to use Sukuma and others preferred Swahili. The researcher had to depend on translation to local Sukuma terms. The researcher was able to listen to their language but to speak it was a bit difficult. However, the information collected was adequate for this thesis.

CHAPTER FOUR: RESULTS

This chapter includes the findings of the interviews with traders, middlemen, and extension officers while the survey with smallholder chicken farmers about the kind and source of market information and constraining factors affecting the accessibility of market information in Misungwi district, Tanzania.

4.1 Results from the survey with smallholder chicken farmers

4.1.1 Basic Information of respondent

Respondents of this study were smallholder chicken farmers. The information about the characteristics of the respondents provides insight understanding of smallholder chicken farmers who were randomly selected for this study.

4.1.1.1 Gender and Age of the respondent

Table 4 presents results for gender information of the respondents. Out of 40 interviewed respondents, 25 respondents (62.5%) were female, and 15 (37.5%) were males.

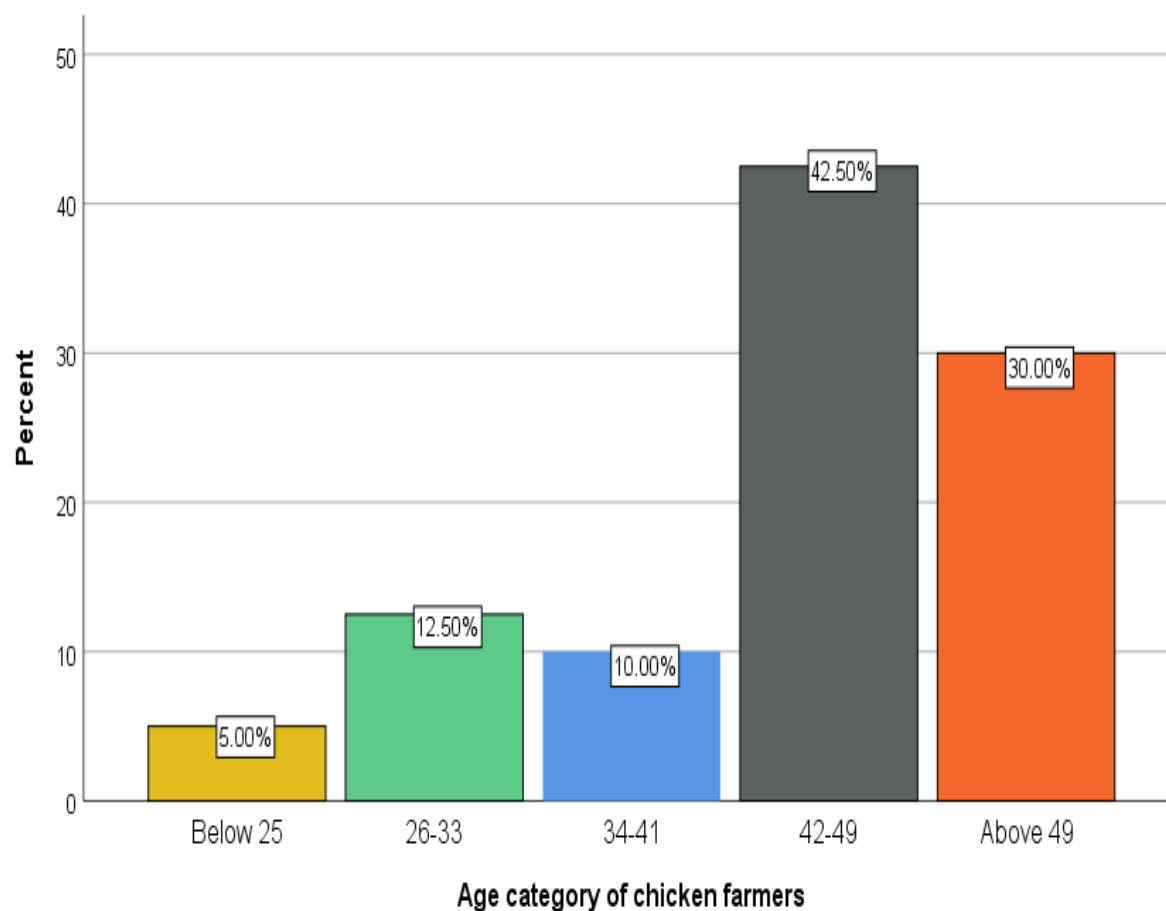
Table 4: Gender of the respondents (N=40)

Variables	Frequency	Percent
Gender		
Male	15	37.5
Female	25	62.5
Total	40	100

Source: Field survey data (2018)

On the other hand, the average age of interviewed 40 smallholder chicken farmers was 45 years, median 48 and minimum and the maximum was 24 and 73 respectively. Age category 42 – 49 years accounted for 42.5%, while smallholder chicken farmers with age below 25 years accounted for only 5%. Figure 6 shows the distribution of smallholder chicken farmers' percentage across different age category. As observed by the Adeogun et al., (2010) that younger smallholder farmers would most likely be eager to spend more time to obtain information on improved technologies compared to the old farmers. This can influence the accessibility of information and use.

Figure 6: Age category of interviewed 40 smallholder chicken farmers



(Source: Field survey data, 2018)

4.1.1.2 Education level of the respondent

The education levels of the respondents were in four categories levels as never been to school, primary education, secondary, and college level. However, no respondent attained a college education level. The majority of the respondents (30 out of 40) belongs to the primary education level of about 75%. The second group is the secondary education level who were 6 (15%) in number, and the last group was those never been to school 4 (10%). Education level affects the accessibility of information by farmers, understanding and also acceptance of some new innovations and practices. Table 5 shows chicken farmers' percentages of those who attained and not attained school.

Table 5: Education level of the respondents (N=40)

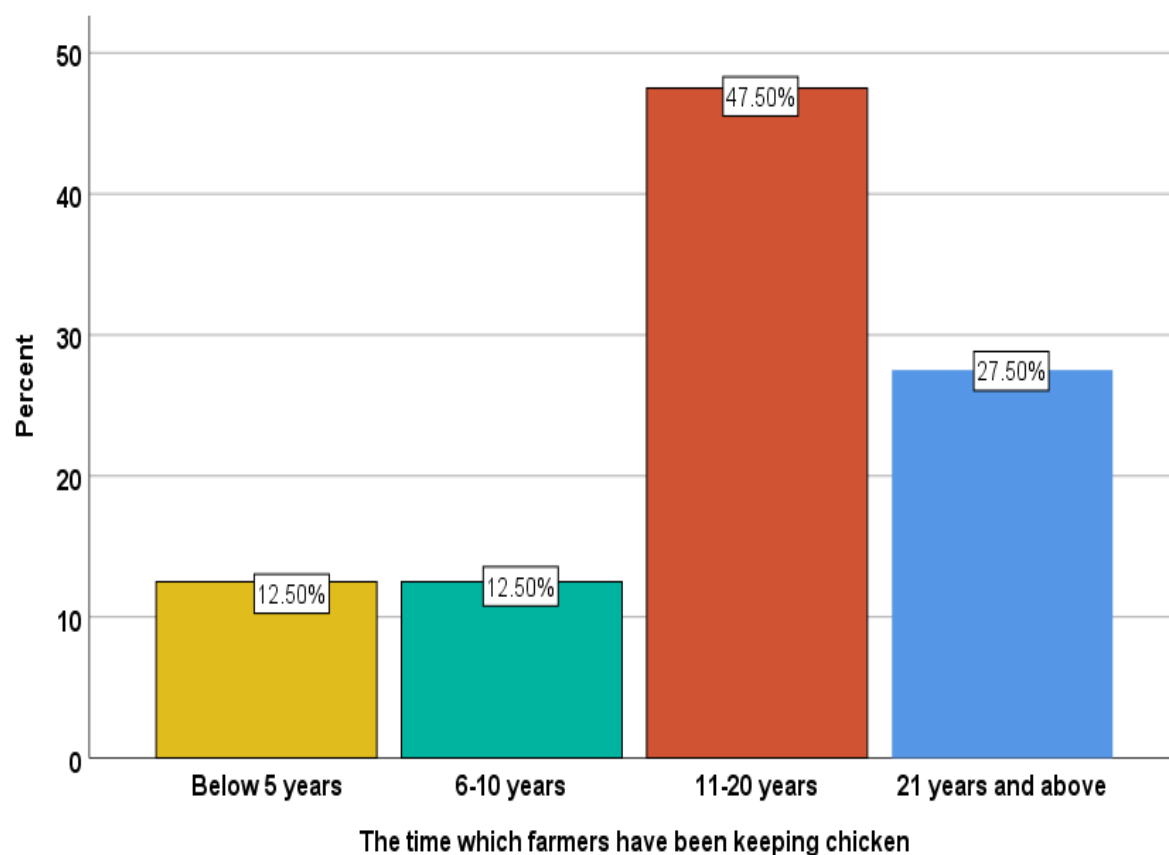
Variable	Frequency	Percent
Education level		
Never been to school	4	10
Primary education	30	75
Secondary education	6	15
Total	40	100

Source: Field survey data (2018)

4.1.1.3 Experience in keeping the indigenous chicken

The study indicates that more than 75% of the smallholder chicken farmers stated that they have been keeping the chicken for more than 11 years. This implies that most of the chicken farmers know chicken production and also, they have been selling their chicken and facing some constraints in accessing market information of indigenous chicken.

Figure 7: Farmers experience in keeping the indigenous chicken

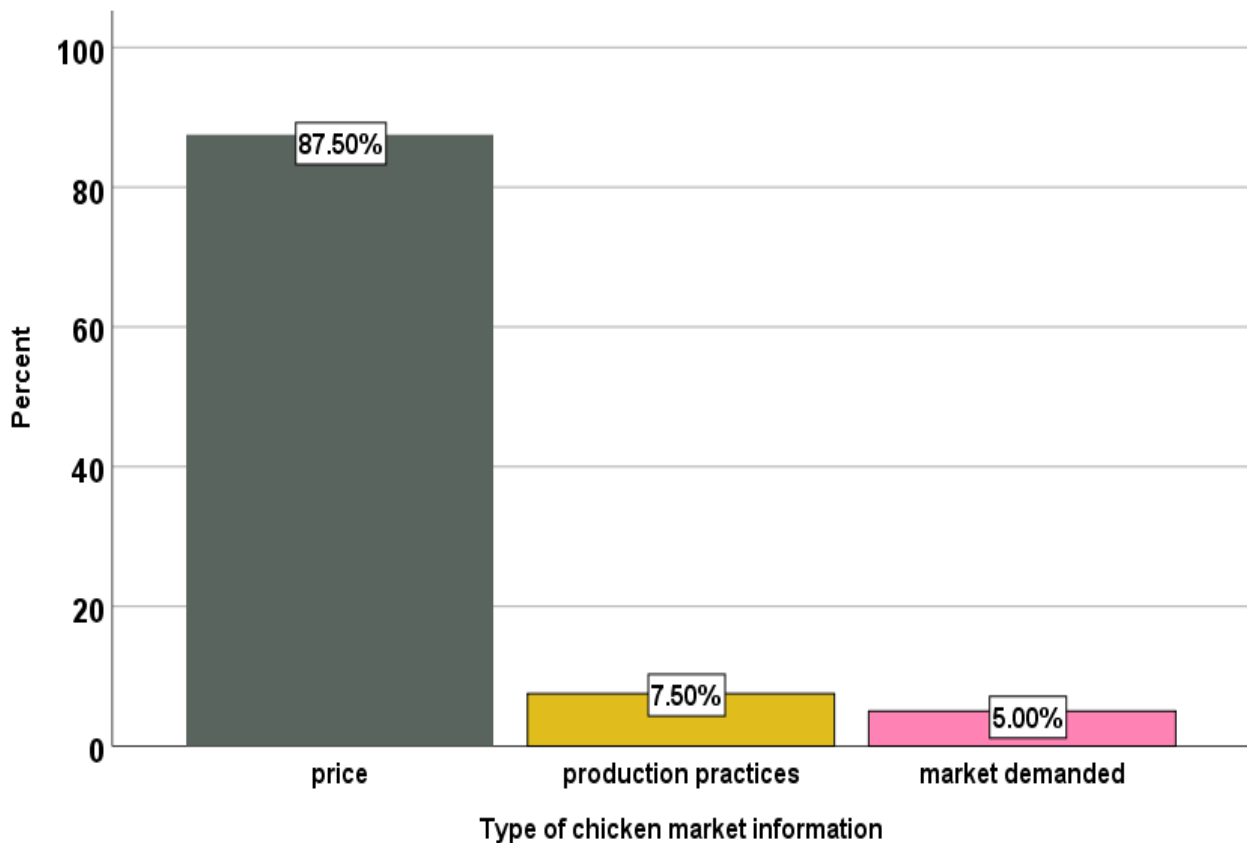


(Source: Field survey data, 2018)

4.1.2 Kind of information

The study indicates that 87.5% of the respondents obtaining price information, 7.5% production practice, and only 5% of the respondents obtaining information on market demand regarding breed varieties as which pays more.

Figure 8: Kind of market information available for smallholder chicken farmers

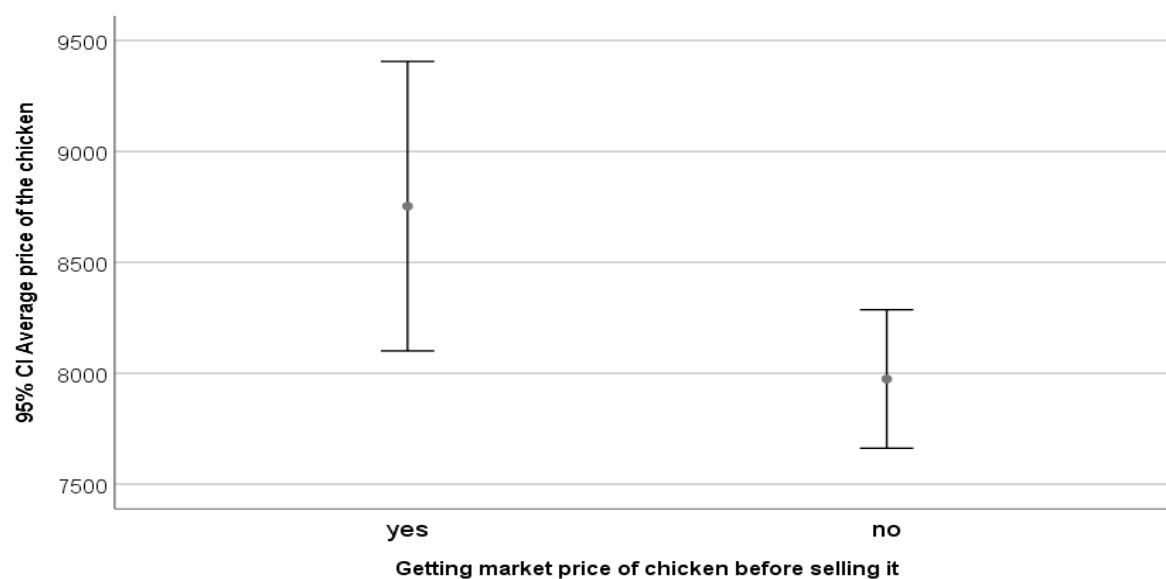


(Source: Field survey data, 2018)

The average price difference between those getting and not getting market price information

Smallholder chicken farmers who are getting market price information before selling their chicken were found to sell at the price of TSH 8,753 per chicken while other smallholder chicken farmers who sell their chicken with no idea of market price received an average price of TSH 7,973 per chicken. The average price difference between the farmers who get the market price information and those who do not get market price information is TSH 780. The independent sample t-test resulted in the p-value of 0.019 which indicates that there is a significant average price difference between those who are getting and not getting market price information. (See appendix 8). Also, the same results indicate figure 9 below.

Figure 9: The Average price difference between those getting and not getting market price information

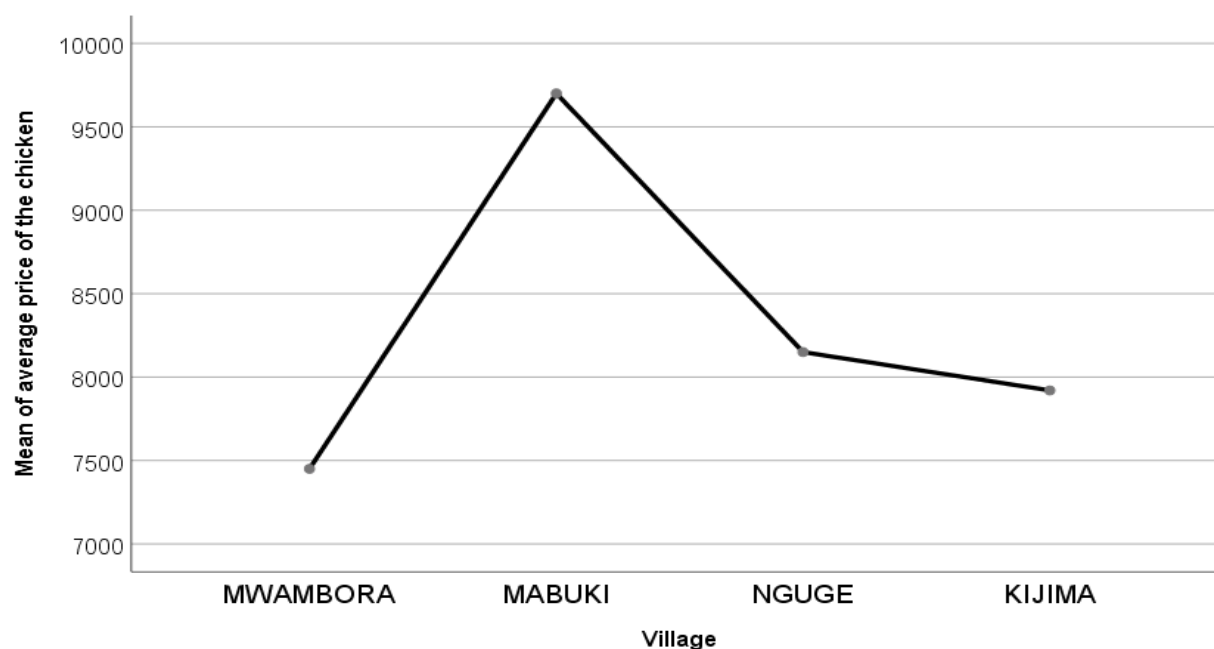


(Source: Field data, 2018)

The average price difference between villages near and far from the primary market

Smallholder chicken farmers from Mabuki received the mean average price of TSH 9,700, followed by smallholder chicken farmers in Nguge who received the mean average price of TSH 8,150, then smallholder chicken farmers of Kijima received the mean average price of TSH 7,920 and the last farmers from Mwambora who received the mean average price of TSH 7,450. The ANOVA test resulted in the p-value of 0.000 which indicates that there is a significant mean average price difference between villages far and near to the primary market. (See appendix 9). Figure 10 below indicates the same results.

Figure 10: The Average price difference between villages near and far from the primary market

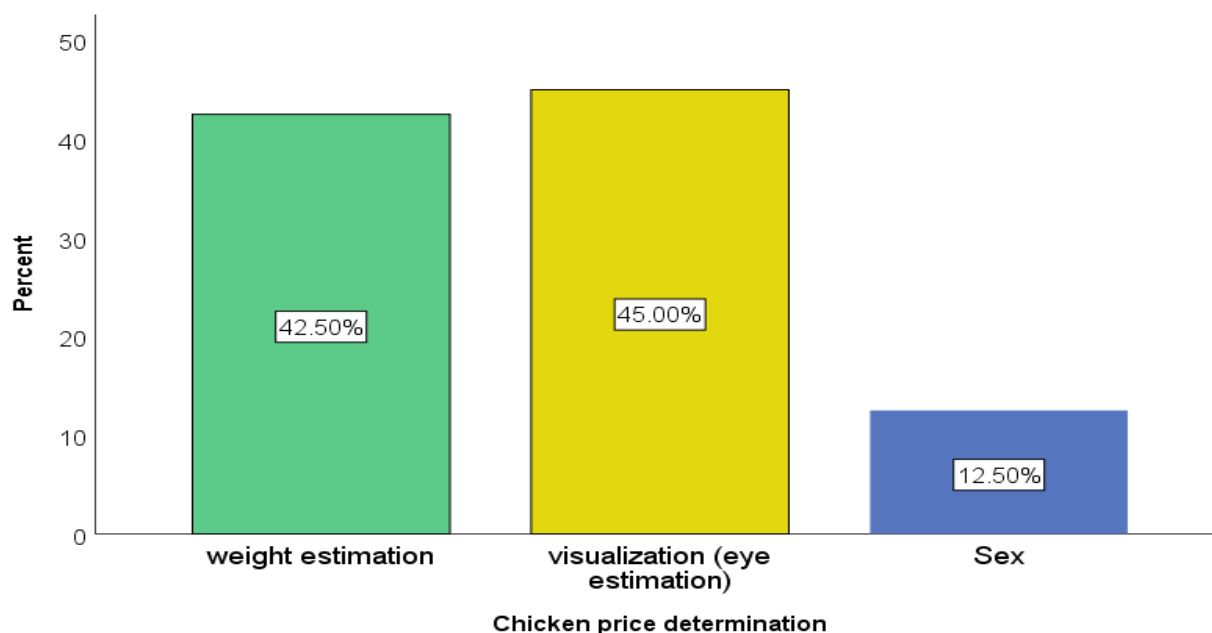


(Source: Field survey data, 2018)

Chicken price determination

The study indicates that 18 (45%) of the respondents were selling their chicken by visualization (eye estimation), followed by 17 (42.5%) of the respondents who were selling by live weight estimation and last 5 (12.5%) respondents were selling by looking at sex. See figure 11.

Figure 11: Chicken price determination



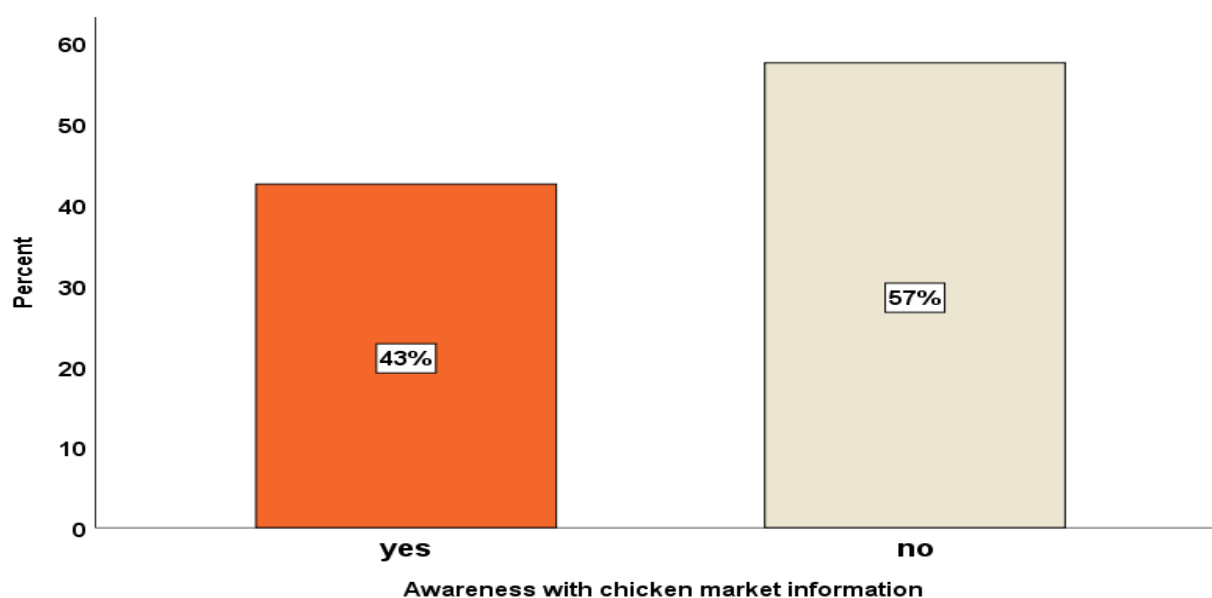
(Source: Field data, 2018)

4.1.3 Source of accessing market information

Chicken farmers' awareness of the market information sources

Respondents aware with market information sources were only 17 (43%) while 23 (57%) respondents were not aware of the sources of market information. See figure 12.

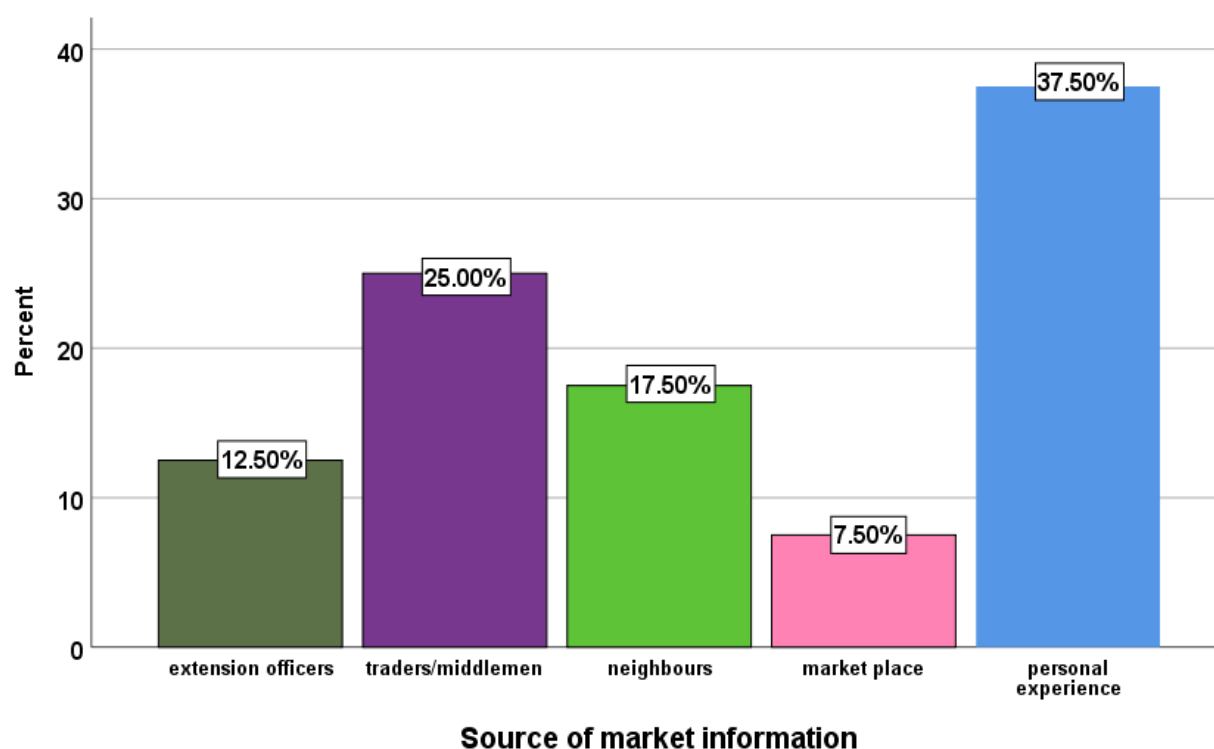
Figure 12: Smallholder chicken farmers awareness towards accessing market information sources



(Source: Field survey data, 2018)

Source of accessing market information was categorised as through middlemen, neighbours, marketplace, extension officer, radio, television and personal experience. This study revealed that neither radio nor television was used to access market information by smallholder chicken farmers. The source of market information for most smallholder chicken farmers 37.5% found to be through personal experience. The second source most used to access market information was through traders/middlemen/village collectors 25%, at which 17.5% was through neighbours, followed by extension officers. And lastly, 7.5% of the respondents found to be a marketplace. See the figure 13 below.

Figure 13: Sources of chicken market information for smallholder chicken farmers



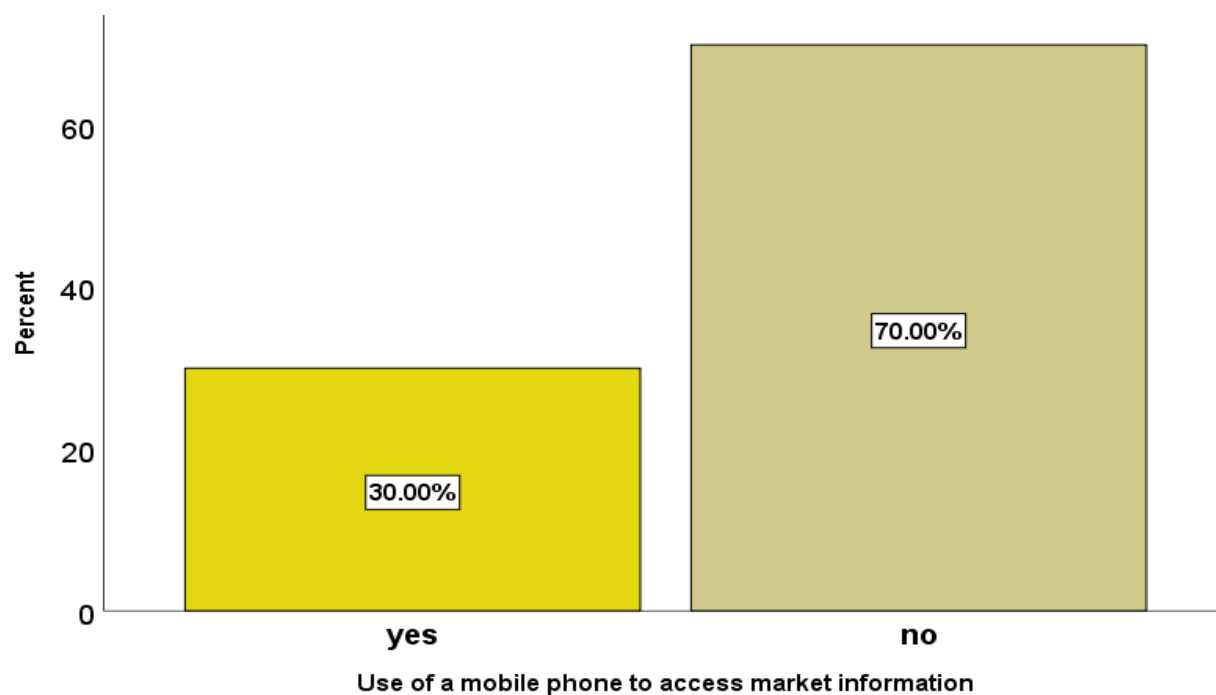
(Source: Field survey data, 2018)

Furthermore, the study indicates that 26 (65%) of the respondents do not agree so much in price information given from the middlemen, 11 (27.5%) respondents totally disagree that middlemen are important in providing market information and only 3 (7.5%) respondents do agree middlemen are essential in providing information on price. See appendix

Access to market information

This study indicates that 28 (70%) of the respondent have no access of market information through the use of a mobile phone and 12 (30%) of the respondent have access to market price information through the use of a mobile phone (see figure 14) while majority of respondent 37 (92.7%) own mobile phones and only 3 (7.5%) respondent do not have mobile phones. (See appendix 10)

Figure 14: Use of a mobile phone to access market information

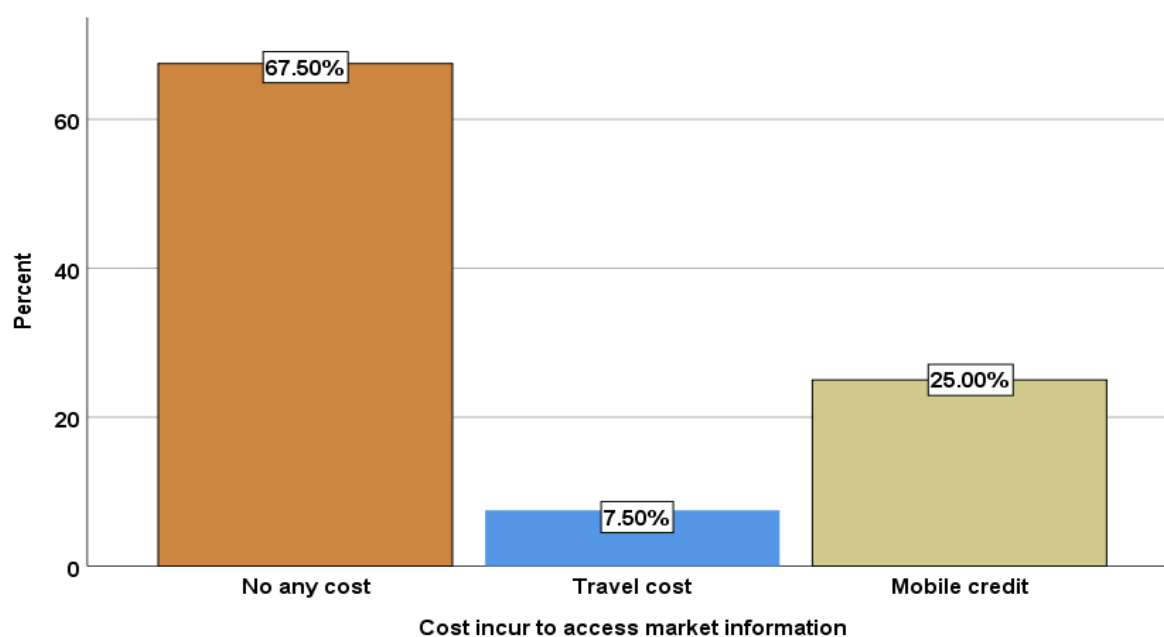


(Source: Field survey data, 2018)

4.1.4 Market information cost

The findings of this study revealed that majority smallholder chicken farmers 67.5% have no cost involved in obtaining market information, 25% they had mobile credit cost means they were using their mobile phones as means of access to market information and lastly 7.5% they were getting market information by visiting the marketplace.

Figure 15: Type of cost involved by smallholder chicken farmers



Source: Field survey data, 2018

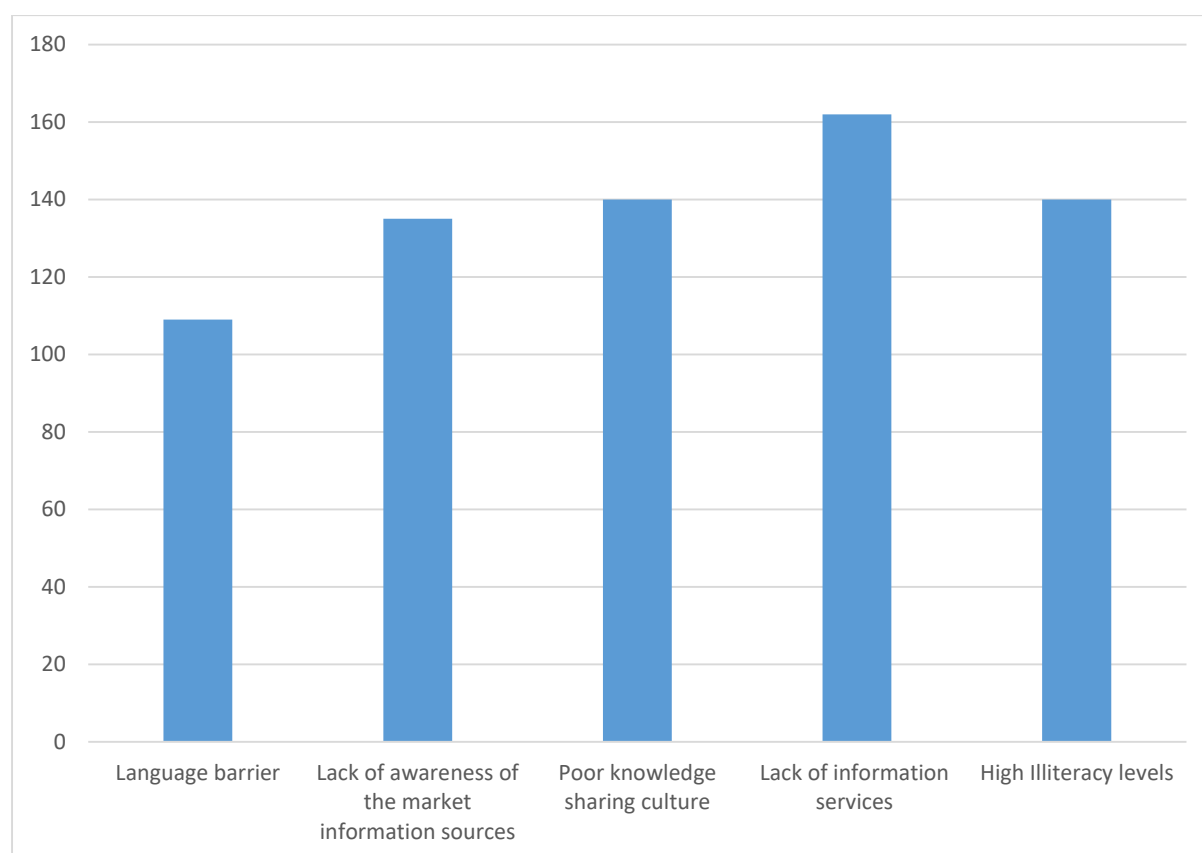
4.1.5 Constraints facing farmers in accessing market information of the indigenous chicken

Smallholder chicken farmers were asked to indicate the constraints they face in obtaining chicken market information. There were two categories, constraining factors in communications and constraining factors in infrastructures.

4.1.5.1 Constraining factors in communication that affects the accessibility of market information

Figure 16 below, indicating that constraints in communication faced by respondents in accessing market information were lack of information services, high illiteracy levels for smallholder chicken farmers, poor knowledge sharing culture, followed by lack of awareness of the market information sources. And lastly, respondent indicated language barrier as one of the constraints though it is not so much.

Figure 16: Constraining factors in communication that affects access in market information

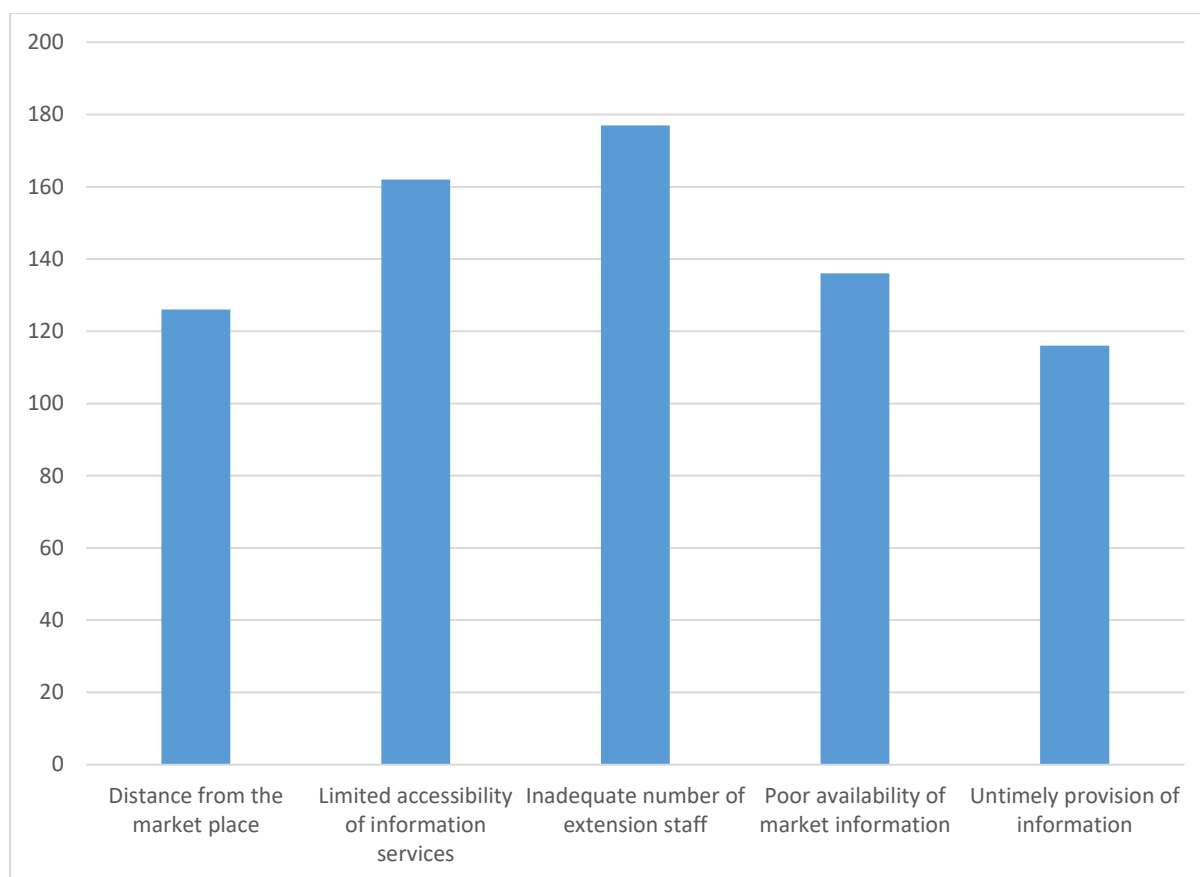


Source: Field survey data, 2018

4.1.5.2 Constraining factors in infrastructure that affects the accessibility of market information

Their responses are shown in figure 17 below. The figure revealed that the most important constraint in accessing market information was an inadequate number of extension staff, limited accessibility of market information, and inadequate availability of market information, followed by the distance from the marketplace. Furthermore, the study revealed that untimely provision of information was the least important constraints that affect the accessibility of market information.

Figure 17: Constraining factors in infrastructure that affects the accessibility of market information



(Field survey data, 2018)

4.1.6 Ways to improve access to market information of the indigenous chicken

Smallholder chicken farmers were asked to give their opinions on possible ways to improve access to chicken market information. Below are their views:

Government to provide short-training and seminars: Smallholder chicken farmers suggested that they could obtain easily market information if the government were to conduct those seminars and training regularly especially for those distant villages to disseminate information to village farmers.

Extension officers to reach them regularly: Smallholder chicken farmers suggested that extension officers should visit them regularly because information is changing from day to day. They also recommended to have an outreach programme for extension officers to their villages; this will facilitate the easy obtaining current information.

Establishment of the selling point: Some of the smallholder chicken farmers were living far from the primary chicken markets. Hence, they suggested to have selling points near their households; this will help them finding market information and meet traders.

Introduction of weighing scale at the chicken market: Smallholder chicken farmers suggested that they could earn more only if they were selling their chicken by the actual weight and not estimated weight by hand.

The government should set chicken price: At the moment the chicken price is determined by traders, and then they come to negotiate with them. Smallholder chicken farmers suggested that if there will be actual price due to the weight of the chicken, they can anticipate even better ways of keeping a chicken. Not only will increase their earning from their chicken but also will increase production.

Formation of chicken farmers associations: Farmers suggested that the government should intervene in establishing those groups of chicken farmers to enable the easier access of market information to village farmers.

Smallholder chicken farmers recommended that market information should be prepared in accessible language to them and make it available to the village office. This will help them easily access the information.

The government needs to remind those extension officers who facilitate the dissemination of chicken information to them to reach also in those smallholder chicken farmers in rural villages. Some farmers pointed out that most of the extension officers were not committed to their work even if they happen to visit their communities, and also stay in office and they don't come to their communities. Hence, makes hardly in obtaining new information.

4.2 Result from the Interview

4.2.1 Interview with village Middlemen

The middlemen interviewed was Abel Malimi (from Mabuki), he always sources his live chicken from the village where is from, whereby smallholder chicken farmers always call him to their households or other going to him at his house physically. He buys groups and sometimes individually. Average purchasing price for cock is TSH 15,000 and hen is TSH 10,000 while chicken in the group he buys at TSH 11,000.

4.2.2 Interview with chicken traders

The trader interviewed was a woman her name is Anna Mabusi, she has been doing this live chicken business for the past 15 years. She gets live chicken mostly from the primary markets including Mabuki and Misungwi. Sometimes from chicken farmers. But she always buys live chicken the middlemen who bring a chicken to the marketplace. She incurs several costs until she sells a batch of chicken. She usually buys into groups and sell it individually or sometimes individually. Criteria used for chicken price determination are weight and size of chicken with comparison with the sex (cock/hen). She faces some cost for purchasing chicken includes; travel cost, paying taxes, feeds for the chicken. (See appendix 6).

4.2.3 Extension officers

The extension officer is a local government employee who is working at the district level. The main activities are to provide extension services such as seminars, advice, and training when there is a new technology, treatment, vaccination and market information to farmers. His comment on the kind of market information they provide to small chicken farmers he said they provide only training on the market demanded breed which pays more at the market. When the researcher asked about challenges smallholder chicken farmer facing to access market information. The following are his answers;

- Lack of awareness of market information. Majority of smallholder chicken farmers keeping chickens habitually. Hence they don't regard finding market information
- A few numbers of chicken they keep. This makes them think they are not in a position of having market information.
- Distance from their households to the marketplace. He said other smallholder chicken farmers are living far away from village centres where the chicken market is located, sometimes find difficulty in obtaining market information.

Suggestion for improvement he said smallholder chicken farmers should formulate farmers groups, which will help them in finding market information and also bargaining for their chickens.

CHAPTER FIVE: DISCUSSION

This chapter presents discussion based on results obtained from the data collection of field survey and interviews in Misungwi district. Moreover, it relates and compares the different situation on the basis of related literature reviewed in the previous chapter. Researcher own experience is also used to analyse the findings. Besides, this chapter tries to discuss the subjects to be answered by this research as mentioned in research sub-questions on the basis of the available information.

5.1 Existing market information reach smallholder chicken farmers currently in the district

5.1.1 Kind of market information

The kind of information shared was mainly on price information and breed varieties which pays more at the market. Similarly, as noted by Mittal and Mahar (2012), reported that price information has an impact on improving the bargaining capability of smallholder farmers with traders. Munyambonera et al., (2012) revealed that availability and access to timely, adequate and information on price are of great importance, especially to small and marginal farmers. Similarly, supported by Bienabe et al. (2004) and Kalembo (2013) who reported that intermediaries do not provide right the information on the market price. According to KIT et al. (2008). It is a challenge situation for smallholder farmer to obtain reliable information on the supply, demand and price and other relevant market information. Information on price becomes essential to smallholder farmers when they can make use of it.

5.1.2 Sources of market information

The study shows that Personal experience, neighbours, and traders or intermediaries were among the three primary sources of smallholder chicken farmers used in accessing chicken market information. Similarly reported by Bernard, Dulle and Ngalapa (2014) who found that most smallholder farmers preferred personal experience as a source of accessing market information, followed by family/parents, neighbours and also extension officers. But Bozi and Ozcatalbas (2010) revealed that family members, neighbour farmer, extension services, input providers and mass media were primary sources of information for Turkish farmers.

Also, research findings revealed that other smallholder chicken farmers access to market information through extension officers and at the marketplace. Few smallholder chicken farmers access to market information through the use of the phone, however none of the respondent reported to use neither radio nor television in obtaining market information. The study also revealed that for most of the smallholder chicken farmers they don't know the role of extension officers towards the provision of market information. Furthermore, the study revealed that smallholder chicken farmers who are getting market price information before selling their chicken they received a higher price than those who are not getting price information.

The findings from this research indicated that less the respondents use mobile phones in obtaining market information while most of them they are not using a mobile phone in getting and disseminating market information, only depending on the information of word of mouth from their neighbours or friends. This was different from the study conducted by the Magesa et al. (2014) who revealed that smallholder farmers heavily depend on the radio and mobile phones in accessing different information including market information, most of the farmers depend on mobile phones for getting and disseminating information market information.

5.2 Constraints facing smallholder chicken farmers in accessing market information

5.2.1 Constraining factors in communication affects smallholder chicken farmers in accessing chicken market information

The study shows that the majority of the smallholder chicken farmers mentioned lack of information services like the one of the constraints facing them in accessing market information. From the discussion of extension officers and chicken farmers, it was noted that there was no information service available in the villages study area. This is in line with Bernard, Dulle and Ngalapa (2014) findings, which revealed that most of the rural smallholder farmers in Tanzania having this problem of lack of information service.

The findings further revealed lack of awareness of the market information sources as constraining factors facing smallholder chicken farmers from accessing market information. For instance, one female smallholder chicken farmers in Kijima village stated that she has no idea where to get help apart from neighbours, and from the personal experience. This is in line with what has been found by Babu et al. (2011) conducted a study on farmers' information needs and search behaviours in Tamil Nadu. The outcomes from this study revealed that the primary constraints facing farmers in accessing information were lack of awareness of information sources available among farmers and unavailability of information.

The findings also revealed that some of the smallholder chicken farmers were illiterate, meaning that they have less chance of accessing market information except other sources including neighbours and also extension visit. This limits their ability to share information and knowledge that they would acquire through reading these simple printed materials. This is in line with Mtega and Benard (2013) and Siyao (2012); who cited from Ochieng (1999) findings, which reported high illiteracy level was one of the limiting factors in accessing of information services in rural areas, and high illiterate rate among rural women hinders them from obtaining information that would help to improve their activities.

Similarly, poor knowledge sharing culture and language barrier was another constraint facing smallholder chicken farmers in accessing market information. This is in line with Byamugisha et al. (2008) who noted that the challenges faced by smallholder farmers in Uganda when searching for information as language barriers and lack of cooperation from fellow farmers in sharing information. Also, Tologbonse et al. (2008) found that the language barrier and outdated information were limiting factors in accessing information.

5.2.1 Constraining factors in infrastructure that affects smallholder chicken farmers in accessing market information.

The findings revealed that the inadequate numbers of extension officers as a major constraining factor in infrastructure facing smallholder chicken farmers from accessing information. In the study area, it shows that extension officers were low compared with the number of smallholder chicken farmers. Hence, few extension officers could see merely few smallholder chicken farmers and could not manage to meet all smallholder chicken farmers, or in another way not all smallholder chicken farmers could meet extension officers. This is in perfect agreement with Aina (2006) who revealed that because of the few in a number of extension staff, farmers hardly obtain new information. Also, poor availability of market information, limited accessibility of information sources and untimely provision of information were constraining factors in infrastructure facing smallholder chicken farmers in accessing market information. All these are in line with Masuki et al. (2010); Ellen (2003) who reported that poor information infrastructure hinders access to information in the Africa continent.

CHAPTER SIX: CONCLUSIONS AND RECOMMENDATIONS

6.1 Conclusion

Considering the findings in relation to the objective of the study, that is to identify constraints facing smallholder chicken farmers to access market information in order to recommend the possible ways for improving access to market information by smallholder chicken farmers in the Misungwi district. This chapter grants the conclusions about the current market information smallholder chicken farmers reach in the district, and constraints facing smallholder chicken farmers in accessing market information.

6.1.1 Current market information smallholder chicken farmers can reach in the district

The findings of this paper are only a sight into the obstacles in accessing market information in the selected rural village parts in Tanzania .Given the evidence from this study, it is therefore concluded that the price information has an impact on improving the bargaining ability of smallholder chicken farmers. Availability and access to relevant, accurate, timely and adequate information on prices through extension officers and other sources, will enable smallholder chicken farmers to make timely decisions.

Furthermore, smallholder chicken farmers provided with price information received a higher price than those who are not getting market price information and the majority of farmers not getting market information before selling their chicken.

6.1.2 Constraints facing smallholder chicken farmers in accessing market information

From the previous discussion made, it was found that access to market price information by smallholder chicken farmers in the village setting case study is a challenge. This is attributed to numerous constraints which are connected to the characteristics of several rural village parts in the developing countries such as constraining factors in communication which includes; Language barriers, lack of awareness of market information sources, and lack of information services.

Besides, constraining factors in infrastructure limiting smallholder chicken includes; distance from the marketplace, an inadequate number of extension staff and poor availability of market information have been obstacles for smallholder chicken farmer in accessing market information.

6.2 Recommendations

Numerous constraints to accessing market information by smallholder chicken farmers in the selected villages in Misungwi district have been discussed in this report. If these constraints are not improved, smallholder chicken farmers will continue to lack essential market information, and this could contribute to reducing their negotiation power. Therefore the following recommendations are suggested to Misungwi district council:

- I. Smallholder farmers should have access to a calibrated weighing scale. This is very important that there will be a guarantee that traders/middlemen can be trusted and, it is about trust. The misungwi government should anticipate playing a role for the information. Having transparency on what price have been paid at certain times.
- II. Creating awareness among smallholder chicken farmers through lobbying village officers at the village level. This means the village executive officer has mandate also to reach

- smallholder chicken farmers in development activities, by using this chance will encounter even those villages far from the market to be aware through their leaders at the village level.
- III. Since most of the smallholder chicken farmers are in rural villages especially those villages far from marketplace and traders/middlemen are their only hope it is now time for Misungwi district to encourage smallholder chicken farmers to build trust on traders.
 - IV. Majority of smallholder chicken farmers are living in the scattered household; Farmers should be motivated to organise themselves into small groups. Being in groups will help them improve their bargaining power.
 - V. Since there are few extension staff., Misungwi district should have plans of outreach programme whereby farmers will be trained on better sources of market information sources
 - VI. To make market information readily available to each village by making sure that the district extension officers have direct contact with village executive officer who will prepare blackboards in their offices for writing market information prices and this information updated on a regular basis and made it available to smallholder chicken farmers.

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APPENDICES

Appendix 1: Survey questionnaire for smallholder chicken farmers

My name is **William Valentino Kikoti**. I am a Master student from the Van Hall Larenstein University of Applied Science conducting research on the Improving access the market information for smallholder indigenous chicken farmers in Misungwi district. You are kind to cooperate in answering questions from this questionnaire; the information you provide is going to be used for academic purposes only and will remain confidential.

Date..... Questionnaire number

Section 1: Demographic of the farmer

1. Gender ☐ Male ☐ Female

2. Location

Village

3. What is your age: ☐ 18 to 25 years ☐ 26 to 33 years ☐ 34 to 41 years
☐ 42 to 49 years ☐ above 49 years

4. What is your education level? ☐ Never been to school ☐ Primary education
☐ Secondary education ☐ College

5. How many chicken do you have?

6. For what purpose do you keep chicken?

- a) For home consumption
- b) For chicken sale
- c) Other (specify).....

7. For how long have you been involved in keeping chickens?

☐ Below 5 years ☐ 6 – 10 years ☐ 11 – 20 years ☐ 21 years and above

8. How far is the chicken market located in your village?

Section 2: Chicken Market information

9. Do you sell chicken? Yes / No

10. If yes, what is the main purpose of selling your chicken??

- a) For family food purchase
- b) To cover school fee and uniform
- c) To cover health fee
- d) Other (specify).....

11. How do you get the buyer?

- a) Market place
- b) From their home places
- c) Whoever passes by
- d) Through the phone call

12. To whom do you sell your chicken?

☐ Neighbours ☐ Restaurant ☐ Traders ☐ Middlemen
☐ Other (specify).....

13. What is the reason for the choice of the buyer?

- a) Offers higher price than others
- b) Distance
- c) Pays on time
- d) Only the buyer available
- e) Other (specify).....

14. Where do you sell your chicken?

- a) Village middlemen ☐
- b) Traders from the primary market ☐
- c) Retailers (restaurants) ☐
- d) Other (specify).....

15. How do you sell your chicken?

- a) Individually ☐
- b) In group ☐
- c) Other (specify).....

16. What is the average price of the chicken?

17. Do you get the expected market price of chicken before selling it? Yes / No

18. Who determines the price of chicken?

- a) Farmer ☐
- b) Trader ☐
- c) Middlemen ☐
- d) Other (specify).....

19. How is the price of chicken determined?

- a) Weight estimation
- b) Visualization (eye estimate) ☐
- c) Sex ☐

d) Other (Please specify).....

20. How do you make a decision on price?

- a) Negotiation b/n seller and buyer
- b) Seller decide
- c) Buyer decide
- d) Other (specify).....

21. How satisfied are you with the price offered?

- a) Very unsatisfied ☐
- b) Unsatisfied ☐
- c) Satisfied ☐
- d) Very satisfied ☐

22. Do you own a mobile phone? Yes / No

23. If the answer is yes, how is the quality of mobile phone network in your area?

- a) Bad ☐
- b) Good ☐
- c) Very good ☐
- d) Excellent ☐

24. Do you use a mobile phone to get market information? Yes / No

25. If yes, how do you rate the contribution of the mobile phone in accessing market information?

- a) Bad ☐
- b) Good ☐
- c) Very good ☐
- d) Excellent ☐

26. Are you aware of chicken market information? Yes / No

27. Where do you get chicken market information?

- a) Middlemen
- b) Extension officers
- c) Radio
- d) Neighbours
- e) Other (specify).....

28. What type of market information do you get from the source mentioned above?

- a) Quality attribute
- b) Price

- c) Quantity
- d) Production practices
- e) Market demanded

29. To what extent chicken market information you get useful for you to make a decision?

- a) Not useful at all ☐
- b) Somewhat useful ☐
- c) Average ☐
- d) Very useful ☐

30. What cost do you incur to access market information?

- a) No any cost ☐
- b) Travel cost ☐
- c) Mobile credit ☐
- d) Other (specify).....

31. What is the effective of the chicken market information in your area?

- a) Not effective
- b) Effective
- c) Moderate
- d) Very effective

32. Do you get any support from the government (extension staff)? Yes /
No

33. What kind of support do you get from the government?

- a) Production practices
- b) Market information
- c) Disease control
- d) Other (specify).....

34. Do you agree that traders/middlemen are important in providing market information?

- a) Not agree ☐
- b) Not so much ☐
- c) Agree ☐
- d) Strongly agree ☐

35. Chicken sub-sector in the district have strong information sharing and flow among chicken value chain actors?

- a) Strongly disagree ☐
- b) Disagree ☐
- c) Agree ☐

d) Strongly agree

☐

Section 3: Market constraints

36. What constraints do you encounter in accessing market information of indigenous chicken?

a) What do constraining factors in communication affect the accessibility of market information for smallholder chicken farmers? (Rank from 1 to 5, 1=Most important and 5=Least important.)

S/N	CONSTRAINTS	1	2	3	4	5
1.	Language barrier					
2.	Poor knowledge sharing culture					
3.	Lack of awareness of information source					
4.	Lack of information services					
5.	High Illiteracy levels					

b) What are constraining factors in infrastructures are there for smallholder chicken farmers in accessing market information? (Rank from 1 to 5, 1=Most important and 5= Least important).

S/N	CONSTRAINTS	1	2	3	4	5
1.	Distance from the market place					
2.	Limited accessibility of information services in rural areas					
3.	Inadequate number of extension staff					
4.	Poor availability of information					
5.	Untimely provision of information					

37. In your opinion, what can be done in order to improve access market information of indigenous chicken?







.....

Thank you for your cooperation

Appendix 2: Transcripts/ responses from smallholder chicken farmers on descriptive questions

QN: 37. In your opinion, What can be done in order to improve access market information of indigenous chicken?

This question was responded to by forty smallholder chicken farmers. The combination of answers of chicken farmers was:-

-  Government to provide short-training and seminars concerning about sources of market information and how they can get it because currently, they lack awareness on market information.
-  Establishment of selling points near to their villages
-  The government should set chicken price
-  Information should be made available to the village offices to enable them to be in a position to reach at the time.
-  Introduction of weighing scale
-  The government should assist them in the establishment of farmers groups. As they said, this would help them in terms of negotiation when selling their chicken.

Appendix 3: Checklist for Middlemen

1. Source of chicken for your business
2. Average purchasing price per chicken
3. Chicken price determination (criteria)
4. Quality required at the market
5. Challenges in your business
6. Opinions/suggestions for improving market information

Appendix 4: Checklist for Trader

1. Experience in the chicken business
2. Sources of chicken for your business
3. Average purchasing price per chicken
4. Criteria for chicken price determination
5. Chicken quality required at the market
6. Sources of chicken market information
7. Challenges in doing chicken business
8. Opinions on improving market information

Appendix 5: Checklist for Extension officer

1. Information availability
2. Kind of information government provide to farmers

3. Accessibility of information to smallholder farmers
4. Information provision
5. Infrastructures for market information
6. Challenges smallholder farmers face to access market information
7. Challenges in delivering/implementing market information to smallholder farmers
8. Opinions to improve access market information by smallholder farmers.

Appendix 6: Transcript/responses from chicken travelling traders

A chicken trader at the Misungwi market – Anna Mabusi

- ❖ What experience do you have in chicken business?
 - Fifteen years
- ❖ Where do you source chicken for the business?
 - At the primary market including Mabuki nad Misungwi
 - Sometimes from smallholder chicken farmers whom they do have her phone number.
- ❖ How do you buy chicken for business?
 - Most of the time, in groups (10 – 30) chicken.
 - Sometimes individually .
- ❖ What is the average purchasing price per chicken?
 - In group (10 – 30) ranges from 11,000 – 12,000/= TSH.
 - Individually Cock – 15,000/=, Hen – ranges from 10,000 – 12,000/= TSH.
- ❖ Selling price
 - Cock – 17,000/=
 - Hen – (12,000- 13,000/=)
- ❖ What are your transaction cost items in purchasing chicken?
 - Transport cost and paying taxes
- ❖ What criteria used for chicken price determination?
 - Weight estimation
 - Eye estimation.
- ❖ What quality of chicken required at the market?
 - There is no any selection of chicken meat for the consumer
 - But sex matters when buying chicken. Cocks pay more than a hen, this is due to the fact that cocks have large body size compare to the hen.
 - Also, some breed varieties pay more and other less, for example, Kuch pays more than Sadala (Sukuma word).
- ❖ Where do you get sources of market information?
 - There is no place they get market information.
- ❖ Where do you sell your chicken?
 - Mwanza town in the urban market sell to other traders
 - Sometimes they sell to the final consumer but not so much

Appendix 7: Transcript/response from extension officers

Extension officer in Misungwi district – Mr Philemeon Fransic Katabazi

- ❖ What information available for smallholder chicken farmers in the district?
 - Chicken management practices. Including feeding practices, chicken production system.
 - Disease control. Giving information to chicken farmers on better ways to avoid disease for their chicken.
- ❖ What kind of information do they provide to smallholder chicken farmers?
 - Market price. Providing fluctuation of price due to the season.
 - Market demanded. Giving them training on the better way on production practices especially chicken housing
- ❖ How does smallholder chicken farmers access the market information provided from them?
 - Through going to the smallholder farmers' households. They do have a routine of visiting farmers almost every day and they do have the range for the day. One extension officer should visit five households per day.
 - Some of smallholder chicken farmers they are getting market information from the market places by going themselves especially those who are near to the village market.
- ❖ What are their roles at the marketplaces?
 - Collection of taxes
 - Providing chicken travelling permit
 - They don't set the price at the market places. Buyer and seller negotiate on chicken price with several criteria they are using.
- ❖ What are the challenges smallholder chicken farmers encounter in accessing chicken market information?
 - Death of their chicken. Some of the chicken farmers are not very serious with chicken keeping. Hence, they don't follow those training which they have been provided to them hence end up with loss due to seasonal diseases.
 - Lack of awareness of market information. Majority of smallholder chicken farmers keeping chickens habitually. Hence they don't regard finding market information
 - Not keeping commercially.
 - A few number of chicken they keep. This makes them think they are not in a position of having market information.
 - Distance from their households to the marketplace.
- ❖ What are the challenges do extension officer encounter on providing market information ?
 - Distance from the office to the households of each smallholder chicken farmer. Makes difficult to meet the target of reaching each farmer in a village.
 - An inadequate number of extension officer. Many farmers households are very scattered hence makes it difficult for a one extension staff to manage to monitor to all chicken farmers.
 - Less committed for chicken farmers, especially on production practices
- ❖ What are your opinions to reduce those constraints in accessing market information?
 - To have enough extension officers in order to have a large range of visiting smallholder chicken farmers at the time.
 - Introduction of calibrated weighing scale. Smallholder chicken farmers will be in a position to bargain price according to the weight of the chicken.
 - Provision of seminars to farmers time to time.
 - Formulation of farmers groups.

Extension officer from Misungwi district – Magreth Chocha

- ❖ What information available for smallholder chicken farmers in the district?
 - The information they getting from extension officers
 -
- ❖ What kind of information do they provide to smallholder chicken farmers?
 - Production practices especially on chicken housing
 - Less price information
 - The market demanded especially on which chicken breed to raise which [pays more at the market.
- ❖ How does smallholder chicken farmers access the market information provided from them?
 - From the village offices. Sometimes they are cooperating with village officers.
 - Through them (extension officers)
 - Some of the chicken farmers accessing market information through the phone, by calling those who are near to the marketplace.
- ❖ What are their roles at the marketplaces?
 - Collection of taxes at the marketplace
 - Providing permit to travelling traders for chicken transfer.
 - Linking sellers (chicken farmers) and buyers of the chickens.
- ❖ What are the challenges smallholder chicken farmers encounter in accessing chicken market information?
 - Distance from the market to the farmers household for some villages where they are keeping their chickens.
 - The remoteness of some villages also attributes in less accessing markets of chicken information.
 - Infrastructure is an obstacle for a farmer to access market information in terms of mobile networks
- ❖ What are the challenges do extension officer encounter on providing market information ?
 - An inadequate number of extension officers in providing information to smallholder chicken farmers.
 - Inadequate librarian material for example leaflets and brochures, boards on the village office, for the provision of information.
- ❖ Plan and priorities with regards to farmers accessing to market information
 - To have livestock development centres (LDC). Brochures and leaflets will be distributed to ensure farmers get timely and relevant information on livestock including chickens.
- ❖ What are your opinions to reduce those constraints in accessing market information?
 - To have library material like leaflets and brochures. Which can be made available at the village government office, this will trigger farmers to reach information in an easy way.
 - Formation of selling points at those villages far from another village market.
 - Introduction of calibrated weighing scale. Farmers will be in a position to have a better way of keeping their chicken to meet a certain chicken weight so that to have a better price.
 - Chicken price setting. According to the weight of the chicken, this will trigger farmers to anticipate better ways of keeping chickens to meet criteria for a high price.
 - Introduction of selling points for those remote villages. With the challenge of distance from their household to market.

- Farmers can be given seminars and training on the advantages of having different market information.
- To use village meetings on giving seminars on chicken production and marketing.
- To have a small budget on the establishment of marketplaces on those remote villages , and encourage traders to travel to those villages with the exclusion of taxes.

Appendix 8: The independent sample t-test for the testing average price difference between those who are getting and not getting market price information.

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						95% Confidence Interval of the Difference
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Average price of the chicken	Equal variances assumed	10.528	.002	2.461	38	.019	779.028	316.575	138.155	1419.901
	Equal variances not assumed			2.274	23.589	.032	779.028	342.595	71.294	1486.763

Appendix 9: The ANOVA test for testing the mean average price difference between far villages and near villages to the primary market.

ANOVA

What is the average price of the chicken?

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	28493000.000	3	9497666.667	23.314	.000
Within Groups	14666000.000	36	407388.889		
Total	43159000.000	39			

Multiple Comparisons

Dependent Variable: What is the average price of the chicken?

LSD

(I) Village	(J) Village	Mean Difference		Sig.	95% Confidence Interval	
		(I-J)	Std. Error		Lower Bound	Upper Bound
MWAMBORA	MABUKI	-2250.000*	285.443	.000	-2828.91	-1671.09
	NGUGE	-700.000*	285.443	.019	-1278.91	-121.09
	KIJIMA	-470.000	285.443	.108	-1048.91	108.91
MABUKI	MWAMBORA	2250.000*	285.443	.000	1671.09	2828.91
	NGUGE	1550.000*	285.443	.000	971.09	2128.91
	KIJIMA	1780.000*	285.443	.000	1201.09	2358.91
NGUGE	MWAMBORA	700.000*	285.443	.019	121.09	1278.91
	MABUKI	-1550.000*	285.443	.000	-2128.91	-971.09
	KIJIMA	230.000	285.443	.426	-348.91	808.91
KIJIMA	MWAMBORA	470.000	285.443	.108	-108.91	1048.91
	MABUKI	-1780.000*	285.443	.000	-2358.91	-1201.09
	NGUGE	-230.000	285.443	.426	-808.91	348.91

*. The mean difference is significant at the 0.05 level.

Appendix 10: Respondent interviewed who own a mobile phone

Own mobile phone

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	37	92.5	92.5	92.5
	no	3	7.5	7.5	100.0
	Total	40	100.0	100.0	

Appendix 11: Calculation of Ms excel, smallholder chicken farmers, ranked their challenges .

Constraining factors in communication that affects smallholder chicken farmers in accessing market information.

	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5
Language barrier	6	3	12	12	7
Lack of awareness of the market information sources	17	6	2	5	10
Poor knowledge sharing culture	9	13	11	3	4
Lack of information services	13	17	9	1	0

High illiteracy level	10	13	9	3	5
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	TOTAL	Rank
Language barrier	109	5
Lack of awareness of the market information sources	135	4
Poor knowledge sharing culture	140	2
Lack of information services	162	1
High illiteracy level	140	2

Constraining factors in infrastructure that affects smallholder chicken farmers in access to market information

	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5
Distance from the market place	14	6	2	8	10
Limited accessibility of information services	16	13	8	3	0
Inadequate number of extension staff	21	15	4	0	0
Poor availability of market information	5	14	13	8	0
Untimely provision of information	0	10	18	10	2

	Total	Rank
Distance from the market place	126	4
Limited accessibility of information services	162	2
Inadequate number of extension staff	177	1
Poor availability of market information	136	3

Appendix 12: Middlemen are important in providing market information

Middlemen are important in providing market information

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not agree	11	27.5	27.5	27.5
	Not so much	26	65.0	65.0	92.5
	Agree	3	7.5	7.5	100.0
	Total	40	100.0	100.0	

Appendix 13: Photo taken during a household survey in Misungwi district.



Interview with smallholder chicken farmer – KIJIMA village



Interview with smallholder chicken farmer – MABUKI Village



Interview with Livestock extension officer – Misungwi office



A filling a questionnaire with smallscale chicken farmers



Interview with middlemen from Mabuki



Middlemen have finished selling their live chicken to traders at the marketplace.



Trader bargaining price of the chicken with a middleman

Appendix 14: Research time frame

Number	Time/Date	Planned Activities
1.	1 st May – 2 nd week of June	Research proposal and Literature review
2.	22 nd June	Travel to Tanzania
3.	25 th June – 30 th June	Make an appointment with stakeholders for interview
4.	1 st week July – 2 nd week August	Fieldwork (Interview and questionnaire)
5.	3 rd week of August	Data entry
6.	17 August Return to the VHL	The journey from Tanzania to the Netherlands
7.	19 – 28 August	Data analysis
8.	31 August – 10 September	Report writing
9.	11 September	Submission of the Thesis report

Appendix 15: Name of the respondents (smallholder chicken farmers from four villages)

S/No_	Name	Gender	Village	Contact
1.	Easter Ngeleja	Female	Mabuki	
2.	Ndaki Mwagala Lusuga	Male	Mabuki	+255745 622980
3.	Kulwa juma	Male	Mabuki	+255785 176906
4.	Agness Charles	Female	Mabuki	+255757 443029
5.	Magreth Wilbert Njumba	Female	Mabuki	+255787 162861
6.	Ngole Kiseena	Female	Mabuki	
7.	Amiri Amrani	Male	Mabuki	+255764 211870
8.	Sophia Mrema	Female	Mabuki	+255752 485988
9.	Dotto Kalikwembe	Male	Mabuki	+255755 052012
10.	Tabia Yusuph	Female	Mabuki	+255766 269795
11.	Rahel Mathiasi	Female	Nguge	+255744 603508
12.	Yudies Byabusha Katunzi	Female	Nguge	+255744 797946
13.	Salome Cosmass	Female	Nguge	+255762 795838
14.	Peter Julius Ngolo	Male	Nguge	+255628 218387
15.	Pendo Joseph	Female	Nguge	+255766 013228
16.	Koleta Cosmas Isamva	Female	Nguge	+255755 057460
17.	Charles Pius	Male	Nguge	+255763 160377
18.	Mahenda Isakaikesho	Male	Nguge	+255768 411431
19.	Regina William	Female	Nguge	
20.	Andrea Madali	Male	Nguge	+255786 8058217
21.	Sara Walesi	Female	Kijima	+255758 896490
22.	Luth Richard	Female	Kijima	+255756 177664
23.	Judith Mazoya	Female	Kijima	+255756 586658

24.	Easter Samwel	Female	Kijima	+255765 778581
25.	Edina Justine Muhamba	Female	Kijima	+255768 194163
26.	Neema Magesa	Female	Kijima	+255767 089717
27.	Abedinego Mamba	Male	Kijima	+255767 534681
28.	Melik Sospeter	Male	Kijima	+255789 013682
29.	Elizabeth N. Mihayo	Female	Kijima	
30.	Mangua Mkangi	Male	Kijima	+255782 967715
31.	Malimi Benge	Mae	Mwambora	
32.	Mwajuma Gecha	Female	Mwambora	+255766 383883
33.	Samson Enoka	Male	Mwambora	
34.	Matha Masalu	Female	Mwambora	+255755 280990
35.	Maurice James	Male	Mwambora	+255746 146897
36.	Ngolo Mathiasi	Female	Mwambora	+255754 485810
37.	Mussa Shitungulu	Male	Mwambora	
38.	Rebecca Mathiasi	Female	Mwambora	+255766 751154
39.	Anna Mtui	Female	Mwambora	
40.	Samaka Julius	Female	Mwambora	