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**CONTRIBUTION OF INDIGENOUS CHICKENS TO IMPROVEMENT OF LIVELIHOODS OF
THE FARMERS IN VHEMBE DISTRICT**

By

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Centre for Rural Development and Poverty Alleviation
School of Agriculture

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November 2011

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DECLARATION

I, **Vele Welhemina Munyadziwa**, hereby declare that this Masters in Rural Development (MRDV) dissertation submitted to the Centre for Rural Development and Poverty Alleviation (CRDPA) at the University of Venda has not been submitted previously for any other degree at this or any other institution. It is original in design and execution, and all references used herein have been duly acknowledged.

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ABSTRACT

There is a growing concern in the world over the worsening poverty, hunger and malnutrition. This is particularly so in developing countries, including South Africa. Indigenous chickens could be used to alleviate poverty, especially in rural areas. However, there is dearth of research that clarifies the contribution of indigenous chickens to rural-based households in Vhembe District of South Africa. Thus, this study aimed to determine the contribution of indigenous chickens towards improving rural livelihoods in Tshikota community within Makhado Local Municipality. The Municipality is one out of the four that constitute Vhembe District in Limpopo Province.

Qualitative and quantitative data were collected using focus group discussions and a survey questionnaire, respectively. Four extension officers and 20 community members were randomly selected to participate as key informants. Semi-structured interview guides were used to collect the data. A combination of snowball and random sampling techniques were used to select 95 farmers involved in indigenous chickens. A formal survey questionnaire was administered to them. Thematic Content analysis was adopted for qualitative data analysis. The Statistical Package for the Social Sciences was used to compute descriptive statistics, cross-tabulations and Chi-square and correlations for the quantitative data.

About 58 % of the farmers were involved in indigenous chicken production, followed by broilers (12.1 %) and layers (1.1 %). Most of the people involved in indigenous chicken farming (48.8 %) inherited the business from their family members, while 41.9 % started their business after purchasing the chickens from others. About 8.1 % of the farmers started their projects with chickens they received as birthday presents from relatives and friends. It was also found that indigenous chicken farmers in Tshikota were predominantly female (67 %). Most families involved in indigenous chicken farming relied mostly on chickens for petty cash. From now and then they would sell the chickens to raise children's school fees and also income to meet households' expenditures. Moreover, jobs created through indigenous farming were regarded as indicators of improved livelihoods for the farmers residing in Tshikota. It was also revealed that better living conditions in terms of money indigenous farmers' families made improved their livelihoods. Predation and mortalities due to diseases were the two major challenges facing the farmers. In order to enhance the role of indigenous chickens as a poverty alleviation tool, it is recommended that veterinary services should be made available to the farmers through

education and training workshops. These services would equip the farmers with the necessary skills aimed at improving management of diseases, proper feeding, programming and marketing.

I wish to express my sincere gratitude and appreciation to the University of Venda, through its

Key words: Chickens, household income, indigenous, farmers, poverty alleviation, rural livelihoods

work. All the glory be to you. My sincere gratitude goes to my Supervisor, Dr M. Mwaile, for continuous encouragement, her valuable support and guidance, dedication, commitment, encouragement, comments, constructive criticism and useful suggestions during the study. Sincere thanks are due to Prof. J. Francis for his professional guidance, continuous help, constructive criticism and assistance. All the indigenous chicken farmers in Tshikotsa, I thank you for taking time off your busy schedules to participate in my study. Let me also extend my sincere gratitude to extension officers from the Limpopo Department of Agriculture for their valuable insights. I must acknowledge the leadership of the Tshikotsa community for affording me an opportunity to conduct my study. I worked with five hardworking research assistants. May the Lord, God richly bless them.

This study is dedicated to my late brother who passed away a week before I completed this study. My dear brother, this dissertation is for you, with the hope that you are brimming with pride wherever you are resting.

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	Expanded Public Works Programme	
	Growth Employment and Redistribution Strategy	
	Human Immunodeficiency Virus	
	Integrated Development Plans	
	Joint Initiative on Priority Skills Acquisition	
	Local Economic Development	
	Poverty Alleviation Projects	
	Reconstruction and Development Programme	
	United Nations Development Programme	

CHAPTER 1: INTRODUCTION

BREVIATIONS AND ACRONYMS

AIDS	Acquired Immunodeficiency Syndrome
ASGISA	Accelerated and Shared Growth Initiatives for South Africa
EOs	Extension officers
EPWP	Expanded Public Works Programmed
GEAR	Growth Employment and Redistribution Strategy
HIV	Human Immunodeficiency Virus
IDP	Integrated Development Plans
JIPSA	Joint Initiative on Priority Skills Acquisition
LED	Local Economic Development
PAPs	Poverty Alleviation Projects
RDP	Reconstruction and Development Programmed
UNDP	United Nation Development Programmed

Most communities, especially in rural areas, keep chickens for socio-economic and socio-cultural purposes. According to Getambu (2004), in various developing countries, indigenous chickens play a significant role in poverty alleviation and enhancing gender equity among disadvantaged communities. Meroni, Esser, Rabie and Cotton (2008) supports this and points out that in Africa, more than 80 % of the total national poultry population is found in rural areas and has been accorded an asset value of US\$5 750 million.

The contribution of these birds to household food security and income is highly significant (Helanki, 2006). Goromela, Kwakkel, Verslegan, and Katule (2007) argue that with the new thrust on sustainable food and nutritional security, which aims to create physical, economic and social environmental access to a balanced diet, village chickens should be placed at a higher level in food security and employment programmes. It is now widely accepted that village chickens are important in breaking the vicious cycle of poverty, malnutrition and diseases (Fischer, 2003). Moreover, they are normally used as buffers or banks in some cases because they are often sold in order to pay school fees, medical costs, village taxes and other uncertainties (Mapiye, Mwaile, Mupangwa, Chimonyo, Fofi and Mutenje, 2006).

CHAPTER 1: INTRODUCTION

1.1 Background

People in developing countries have been involved in animal husbandry and production since the beginning of time. According to Kondombo (2005), animal production in general and chicken production in particular play important socioeconomic roles in these countries with Aberra and Tegene (2007) further revealing that nearly all rural and peri-urban families in developing countries keep a small flock of free ranging chickens. Most of the families who keep these indigenous chickens do so for consumption purposes. Delgado, Rosegrant, Steinfeld and Courbois (1999) estimate that by the year 2020 the proportional contribution of poultry to the total animal protein production in the world will increase to 40 %. The major increase will be realized in the developing world.

Most communities, especially in rural areas, keep chickens for socio-economic and socio-cultural purposes. According to Getambu (2004), in various developing countries, indigenous chickens play a significant role in poverty alleviation and enhancing gender equity among disadvantaged communities. Marais, Esser, Rabie and Cotton (2008) supports this and points out that in Africa, more than 60 % of the total national poultry population is found in rural areas and has been accorded an asset value of US\$5 750 million.

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The production of indigenous chickens can be considered as an initiative enterprise owing to its low cost. Such a production system can be easily run by rural households, who apply their local knowledge of breeding, feeding and health management (Svedberg, 2003). In South Africa, this is relevant, especially in provinces such as the Eastern Cape and Limpopo which are dominated by rural areas, as well as being the poorest provinces (Tshitangoni, Okorie and Francis, 2010). Therefore, the chickens can be a useful vehicle for poverty alleviation and improvement of rural livelihoods in the Tshikota community.

Although there is appreciable knowledge on the value of indigenous chickens, there is dearth of information regarding their use as a vehicle for poverty alleviation in Limpopo Province of South Africa. For this reason, it is crucial to determine the contribution of indigenous chickens to the improvement of the rural livelihoods in the Tshikota community. It is paramount for studies of this nature to be carried out in rural areas such as the Tshikota community, which is also ravaged by poverty, also, to determine and document evidence on how indigenous poultry contributes to the livelihoods of the residents in rural areas is important.

1.2 Statement of the Research Problem

Little empirical research has been carried out to determine if indigenous chickens can be a useful vehicle for improving livelihoods in the Tshikota community in Vhembe District of South Africa. This is the case in spite of the fact that in South Africa, the unemployment rate of (25.5 %) remains high, while in Limpopo, 931 275 people out of a total population of 5.56 million do not have jobs (United Nations Development Programmed: UNDP, 2007). Wages remitted by family members working in cities and towns are not enough to fully supplement the income generated locally, thus resulting in high levels of poverty, as might be happening in the Tshikota community. Unemployment causes considerably high school dropout rates. Children who drop out of school end up roaming in the streets. Consequently, it is not surprising that the rates of crime such as pick pocketing and hijacking, are increasing (UNDP, 2007). Teenage pregnancies and high death rates due to malnutrition caused by inadequate and lack of healthy food remain unacceptably high. This situation justifies devising invaluable ways of reducing poverty, which would lead to the improvement of living standards of people in rural areas such as Tshikota

village. Indigenous chickens could be a useful vehicle for alleviating poverty in this area given the fact that almost all the households keep chickens.

The main objective of this study was to determine the contribution of indigenous chickens to the improvement of rural livelihoods in the Tshikota community. This was achieved through the following specific objectives:

1.3 Justification of the Study

a) To determine the effectiveness of indigenous poultry farming as a vehicle for poverty

Despite the economic shortfall of the Tshikota community, there is potential for utilizing locally available indigenous chickens as existing resources for improved productivity and better living standards. This is due to the fact that at least every household owns chickens, which are important for improving the livelihoods of many farmers worldwide. Chickens are raised in low input traditional management systems (Derek, 2008). The chickens spend the night in the main house, perched on trees or on roofs. They scavenge for food which includes kitchen waste, insects, worms, grasses and vegetables. Indigenous chickens can also play a crucial role in pest control in rice and maize production (Mwale and Masika, 2009), thereby indirectly enhancing the availability of food. The chickens supply meat that has specific texture, taste and contains low fat. This makes it preferable to most consumers. In South Africa, eggs are used as part of traditional herbal medicine called "Jamu" (Nwagu, 2002). This implies that chicken rearing helps improve the health of household members.

Improving employment opportunities in the Tshikota community could help to enhance wages remitted by family members based in cities or towns. This would help the local population to break the vicious cycle of poverty and malnutrition. Indigenous chickens also enhance the generation of income and provide cheap, readily harvestable meat and eggs with high quality digestible protein for immediate home consumption (Alders and Spradbrow, 2000).

In addition, information generated through this study might reveal gaps for further investigation and informing policy making processes, in and could also contribute significantly to researchers, and other scholars.

Poultry refers to domesticated birds kept for eggs or meat". For the purpose of this study, poultry were recognised as domesticated fowls valued for their meat and eggs. This definition includes chickens, turkeys, ducks, geese, and guinea fowls.

1.4 Objectives

The main objective of this study was to determine the contribution of indigenous chickens to the improvement of rural livelihoods in the Tshikota community. This was achieved through the following specific objectives:

- a) to determine the effectiveness of indigenous poultry farming as a vehicle for poverty alleviation in rural areas;
- b) to investigate the marketing channels and key players in the poultry marketing system for rural households in Tshikota community; and
- c) to identify the major constraints and possible opportunities for using indigenous chickens as a vehicle for eradicating poverty in Tshikota community.

1.5 Research Hypotheses

The following null hypotheses fortified the study:

- a) The effectiveness of indigenous poultry farming as a vehicle for poverty alleviation in rural areas is not known;
- b) There are no marketing channels and no one is a key player in indigenous poultry marketing systems for rural households in Tshikota community; and
- c) There are no major constraints and opportunities for using indigenous chickens as a vehicle for alleviating poverty in the Tshikota community.

1.6 Definition of Key Terms and Concepts

Poultry refers to “domesticated birds kept for eggs or meat”. For the purpose of this study, poultry were recognised as domesticated fowls valued for their meat and eggs. This definition includes chickens, turkeys, ducks, geese, and guinea fowls.

Livelihood is a term used to refer to a means of living, especially of earning enough money to feed oneself, among others.

Indigenous is a term that means originating and living or occurring naturally in an area or environment.

1.7 Outline of the Dissertation

The dissertation is a set of inter-connected chapters, prepared in order to ensure that readers find it easier to follow its sequence. Chapter 1 presents an outline of the general introduction of the study. It encompasses the background and the significance of the study, statement of the research problem, justification of the study, the objectives, research hypotheses, and definition of operational key terms and concepts. In Chapter 2 the existing literature on the contribution of indigenous chickens to the livelihoods of people is reviewed. This gives the reader an opportunity to get an insight into what the study focused on. Chapter 3 is devoted to the research methodology, including the nature, design, population and location of the study, sampling procedure, data collection process and instruments, as well as ethical considerations. Chapters 4 and chapter 5 were intertwined, with the former dedicated to describing the results of the qualitative study while the latter presents the results and discussion of the quantitative study. Chapter 6 is a consolidation of the findings of the study. In this chapter, there is a section where the researcher offers recommendations for further research. Thereafter there is a list of references used in the dissertation and the Appendices comprising the research tools that were used.

CHAPTER 2 REVIEW OF LITERATURE

2.1 Introduction

Poverty is the most devastating social problem facing the South African society today (Mammburu, 2004). The Tshikota community, where the study was carried out, is overpopulated. It has a high rate of crime, lot of pick pocketing, car hijacking, and teenage pregnancies. Many people die because of HIV and AIDS and tuberculosis caused by malnutrition (Marais, Obihara, Warren, Schaaf, Gie and Donald, 2005). However, little has been done to combat poverty in Tshikota community, one of the vast rural communities in the Limpopo Province of South Africa. Reconstruction and development programme (RDP) houses, electrification of the area, Governmental Grants, provision of sanitation services, feeding scheme at school were introduced in the area to try and combat poverty. However, there are still high levels of poverty requiring more development interventions. On the other hand Indigenous chicken production has been practiced throughout the African continent by rural communities for many generations (Gueye, 2002), and the chickens constitute more than 80% of the African continent's poultry flock. Thus, the indigenous chickens remain predominant in African villages and they might contribute to the eradication of poverty and malnutrition by providing cheap readily harvestable animal protein enriched white meat and eggs with high quality digestible proteins for immediate home consumption (van Marle-Koster, Hefer, Nel and Groenen, 2008). However, there is dearth of research investigating if indigenous chickens can be used as a vehicle to alleviate poverty. The main objective of the current study was therefore to determine the contribution of indigenous chickens to the improvement of rural livelihoods in Tshikota community.

Literature was reviewed under the following subheadings: poverty, causes of poverty, Poverty in South Africa, Poverty in Vhembe District of Limpopo Province, Poverty in the researched area, Tshikota Community, Governance, accountability and poverty alleviation in South Africa. Apart from reviewing literature on the existence of indigenous chickens in the African households, this chapter outlines the impact of indigenous farming in farmers' economic standings, their contributions to the family members' protein as well as the family's food security. Secondly, the

chapter outlines the role that these chickens play in the socio-cultural and religious ceremonies in the African continent. The chapter also reveals literature on the marketing strategies used by farmers to get their products into the market as well as the advantages and disadvantages of running an indigenous chicken farming. A theoretical framework for the current study was presented as a synthesis of the relationships between indigenous poultry farming, food security and poverty alleviation amongst the farmers.

2.2 Poverty

Poverty is a condition in which a person or community is deprived of, or lacks the essentials for a minimum standard of well-being and life, such as clean water, nutrition, health care, education, clothing and shelter. This is mainly due to the inability to afford the necessary basic needs (Zere and McIntyre, 2003). Although the most severe poverty is in the developing world, there is evidence of poverty in every region (Machethe, 2004). In developed countries, this condition results in wandering homeless people and poor suburbs and ghettos (Oshaug and Haddad, 2009). Poverty may be seen as the collective condition of poor people or of poor groups, and in this sense entire nation-states are sometimes regarded as poor.

Even if poverty may be lessening for the world as a whole, it continues to be an enormous problem. One third of deaths-some 18 million people a year or 50,000 per day-are due to poverty-related cause (Machethe, 2004). Since 1990, 270 million (roughly equal to the population of the US) the majority of whom are women and children have died (Laker, 2006). Every year nearly 11 million children die before their fifth birthday. In 2001, 1.1 billion peoples had consumption levels below \$1 a day and 2.7 billion lives on less than \$2 a day (Laker, 2006). Eight hundred million people go to bed hungry every day (Laker, 2006). Poverty was found to be the most prevalent form of Malnutrition in South Africa (Duflo, 2008). Poverty has many dimensions, and it is clear that different kinds of initiatives are needed to combat poverty at different levels (international, regional, national and sub-national) (Derek, 2008).

2.3 Poverty in South Africa

South Africa has a population of approximately 49 million (Michael, 2008). The country's poverty level remains high and has not been greatly reduced since 1994 (Gillespie, Kadiyala and Greener, 2007). According to Stellenbosch University-based economic researchers, the poverty headcount rate in South Africa was 50.1 % in 1993 and 44.4 % in 2006. The extent of poverty reduction in South Africa remains unclear. All measures of income inequality indicate a widening gap between the rich and the poor (Barua and Yoshimura, 2005). There is consensus that income inequality, particularly within race groups has increased (Barua and Yoshimura, 2005). Poverty in South Africa is also caused by unemployment, using the expanded definition; unemployment currently stands at around 40 % and around 23 % using the narrow definition (Machethe, 2004). According to De Onis (2000) unemployment rate in South Africa remains much higher than it was in 1994 and is higher than anywhere else in the World except in Iraq.

2.4 Poverty in Vhembe District of Limpopo Province

The Limpopo Province, where Tshikota community is, is one of the nine provinces in the Republic of South Africa which is the second poorest after the Eastern Cape (Mtileni, Muchadeyi, Maiwashe, Phitsane, Halimani, Chimonyo and Dzama, 2009). Poverty Indicators are shown below (Vhembe District Municipality, 2008). Table 2.1 shows that about 813,467 people in Vhembe District Municipality (STATSSA, 2001) are living in poverty. This accounts for 65.2 % of the total population of Vhembe. This figure is too high and it must be reduced significantly to meet one of the millennium development goals of halving poverty by 2015. Poverty is more entrenched amongst the Black people, the majority (65.9 %) of whom are living in rural areas. They are followed by Coloureds (41.4 %) and Whites (7.1 %). Only 3.8 % of the Asians are in poverty as indicated in Table 2.2.

Table 2.1 Number of people in South Africa living in poverty

Population category	Poverty as a proportion of Vhembe District (%)						
	National	Limpopo	Vhembe	Musina	Mutale	Thulamela	Makhado
a) Black	20 085 365	3 110 706	812 051	2.677	7.749	46.028	43.371
b) White	185 200	7 684	867	0.028	0.005	0.005	0.069
c) Coloured	765 231	2 047	453	0.003	0.001	0.006	0.046
d) Asian	81 624	475	96	0.000	0.000	0.008	0.004
Total	21 117 420	3 120 911	813 467	2.709	7.755	46.047	43.489

Source: STATSSA, 2006/2007

Table 2.2 also indicates the percentage of people living in poverty (less than \$1 per day). Musina Municipality has the lowest percentage of people living in poverty (47.5 %) while Makhado, where Tshikote a, has the highest (71.1 %). Nationally, Black people are the poorest

Table 2.2 Proportion of people living in poverty in South Africa

	Proportion of Poverty, %						
	National	Limpopo	Vhembe	Musina	Mutale	Thulamela	Makhado
Black	53.9	61.2	65.9	48.5	71.5	62.4	70.6
White	3.8	5.9	7.1	16.8	7.4	9	5.7
Coloured	18.6	3.3	41.4	-	-	-	44.8
Asian	7.0	6.1	3.8	-	-	5	2.5
Total	44.6	59.7	65.2	47.5	71.1	62.3	69.1

Source: STATSSA, 2006/2007

Table 2.2 also indicates the percentage of people living in poverty (less than \$1 per day). Musina Municipality has the lowest percentage of people living in poverty (47.5 %) while Makhado, where Tshikota is, has the highest (71.1 %). Nationally, Black people are the poorest followed, by the Coloureds. Of all the people living in poverty, 56 % are Black, 35 % Coloured, 6 % Whites and 3 % Asians (STATSSA, 2006). This shows that Black people are the most affected by poverty, and followed by the Coloureds. They are in this position mostly because of the legacy of the past. The Local Economic Development (LED) strategy, therefore, should seek to address the imbalances of the past.

Due to poverty problems, the government initiated projects as part of corporate social responsibility. The projects included vegetable gardening, poultry, piggeries, bakeries, brick making, juice production, sewing and coffin making (De Onis, 2000). Challenges to the project performance were identified. The identified challenges were classified into two categories, namely inception-based and implementation or operation-based. The major challenges included lack of training and relevant skills for the operation, sustainability of the projects, provision of more funding than was required to start each project, inappropriate methods of establishing projects, high levels of illiteracy among project, beneficiaries, lack of equipment, and fraudulent use of project funds (Tshitangoni et al., 2010).

2.5 Poverty in Tshikota community

Children in the area of study suffer from Kwashiorkor or malnutrition due to lack of nutritious food (Svedberg, 2003). Poverty is associated with mental health problems and a number of specific mental disorders (UNDP, 2007). Daily incidents of hunger and starvation are reported in different media such as newsletters and radios. The community is affected by high levels of crime, a lot of pick pocketing, car hijacking and teenage pregnancies. People also die of HIV and AIDS and tuberculosis which are caused by malnutrition (Marais et al., 2005).

2.6 Causes and Effects of Poverty in South Africa

There are many different reasons why there is poverty in South Africa. The key reasons are because the people of South Africa do not use their natural (resources) such as farmland and available agricultural resources to produce food for them (Gueye, 2008). Most of the people do not have the knowledge and skills to produce, store and export food to other countries. Poverty in South Africa can cause malnutrition which in turn contributes to different type of diseases such as HIV and AIDS tuberculosis and Kwashiorkor (Janssens and Rieder, 2008). Some of the effects of poverty are discussed below.

2.6.1 Malnutrition

Child malnutrition is one of the most common causes of infant and child mortality worldwide (Faber and Wenhold, 2007). It is associated with half of all deaths in children under the age of five each year. The risk of death is particularly high for children with malnutrition that is up to 20 times higher than a healthy child (Pelletier, Frongillo, Schroeder and Habicht, 2008). Africa is the most alarming hotspot for child malnutrition and mortality. Half of the deaths in children under five in developing countries occur in this region (Skoufias, 2009). Africa accounts for about 2 % of deaths and about 3 % of disability-adjusted life years (Nemer, Gelband and Jha, 2003). Malnutrition may adversely affect the children's intellectual development and consequently prevent his/her development in later life (Cravioto and Arrieta, 2003).

2.6.2 HIV and AIDS

Over 33 million people in Africa are currently living with HIV and AIDS of whom 50 % are estimated to be women (Stephenson, 2009). About 12 to 16 million African children are orphaned by HIV and AIDS (Richter, 2003). Their parents die shameful deaths, but nobody seems to care. Infections may be caused by unsafe injections unsafe sex or blood donations (Smith, 2009).

and Western Cape) (Gwatkin, 2000). The projects, such as the Reconstruction and In South Africa poverty increases the risk of contracting HIV and AIDS because of risky behaviour such as transactional sex and substance abuse (Dunkle, Jewkes, Brown, Gray and Harlow, 2004). Fewer opportunities for employment and education prevent the empowerment of women (Pettifor, Measham, Rees and Padian, 2004). This results in women engaging in informal jobs most of which expose them to activities that pave way for HIV and AIDS infection as they try to earn a living. On a broader national scale lack of finances can restrict development educational opportunities, access to health care and employment thereby creating a favourable setting for the spread of HIV and AIDS (Gielen, Faden and Eke, 1997). Due to its social consciousness, the South African government has placed the need to address poverty and inequality which were caused by the implementation of apartheid policies that promoted racial discrimination and limited access to education, firmly at the centre of the nation's transformation agenda (Mubangizi, 2008).

2.6.3 Tuberculosis

Janssen and Rieder (2008) recently reported an inverse linear association between tuberculosis (TB) incidence and per capital gross domestic product. Poverty facilitates the transmission of mycobacterium tuberculosis primarily through its influence on living conditions such as people living in overcrowded and poorly ventilated homes (Kritzing, den Boon and Verver, 2008). Effective public health strategies remain critically important even in the poorest settings. However, the global distribution of tuberculosis bears witness to the fact that extreme inequalities in wealth remain one of the key factors sustaining the tuberculosis epidemic (Janssen and Rieder, 2008).

2.7 Governance, Accountability and Poverty Alleviation in South Africa

South Africa has an excellent Constitution and Bill of Rights, justifiable economic and social rights, and generally good pro-poor policies (Gwatkin, 2000). According to the country's public Services Commission, 29 966 government funded projects have been established (Gauteng

and Western Cape) (Gwatkin, 2000). The projects, such as the Reconstruction and Development Programme (RDP), Growth Employment and Redistribution Strategy (GEAR), Poverty Alleviation Projects (PAPs), Expanded Public Works Programmes (EPWPs), Joint Initiative on Priority skills acquisition (JIPSA), accelerated and shared growth initiatives for South Africa (ASGISA), food security programmes such as school feeding schemes and social security grants (Department of Agriculture, 2007), among many others were established with the aim of alleviating poverty.

2.8 Indigenous Chickens in African Families

Most African families and other developing continents, especially those residing in rural and semi rural areas are known to keep free range chickens in their backyards *sewanyana*, E., Oluka and Masaba. (2003b). In the late 1990s it was found that an estimated 80 % of the chicken populations in Africa are reared in free scavenging systems (Gueye, 2002). Of those who keep the free range chickens, (Sonaiya, 2004) found that smallholder farming families, landless laborers and people with incomes below the poverty line are able to raise chickens with low inputs and harvest the benefits of eggs and meat via scavenging feed resources.

In South Africa, in the late 1990s it was found that free range chickens constituted about 80 % of the country's rural poultry flock and were found to be a major source of readily available protein in the form of eggs and meat, as well as cash for 90 % of the rural households (Gueye, 2001). However, while indigenous chickens are found to play a key role for rural families' nutritional needs amongst others, when compared to commercial layer and broiler chickens, the indigenous chickens produce fewer eggs and have smaller body weights (Skoufias, 2009). Furthermore indigenous chickens tend to have lower feed efficiency.

In Ethiopia, research findings have revealed that just like most African countries, chicken are widespread and almost every rural family owns chicken (Tadelle, Million, Alemu, and Peters, 2003). In 2009 the total chicken population in this country was estimated at 38.1 million with majority (99 %) of these chicken being maintained under a traditional system with little or no inputs for housing, feeding or health care (Tadelle et al., (2003). The most dominant chicken

types reared in this system are local ecotypes, which show a large variation in body position, colour, comb type and productivity (Mubangizi, 2008).

In Uganda, Ssewanyana, Onyait, Ogwal, Mukasa, Nsamba and Masamba, (2003a) found that free-range poultry is widespread in the rural areas with 90 % of rural households in the country possessing indigenous chickens. More than a decade ago these chickens comprised 80% of the total poultry population of 23 million birds in the country (Marais et al., 2008). Just like in most countries, local poultry is an important source of meat and eggs, particularly in rural communities where they are valued mainly for their ability to scavenge, disease tolerance, meat quality and general hardiness (Ssewanyana et al., 2003a). In rural communities, free-range chickens contribute significantly to the livelihoods of the households. They are easily disposed of when need arises by any of the family members. Ssewanyana et al. (2003a) observed that in Apac and Kumi districts, husband and wife jointly take the decisions on sales.

2.9 Multiple roles of Indigenous chickens

2.9.1 Indigenous Poultry as a Source of Livelihoods

Indigenous chicken production is considered an income earning activity that fits well with the concept of small-scale agricultural development in poverty alleviation (Delgado, Bourbons and Rosegrant, 1998). Therefore, its improved productivity is likely to contribute to poverty alleviation in the rural villages (Mubangizi, 2008). The potential of local poultry to serve as an entry point and development engine for rural areas through crossbreeding has been suggested by Ssewanyana, Oluka and Masaba, (2003b). Barua and Yoshimura, (2005) argues that improving the village chicken production systems would result in increased opportunities and more equitable distribution of food and income within and among households especially in villages.

While Mogesse, (2007) argue that family chicken are rarely the sole means of livelihood for the family, they however concur that it is one of a number of integrated farming activities contributing to the overall well-being of the households. It provides employment and income

generating opportunity and is a priority animal for holiday and religious sacrifices (Tadelle and Ogle 2001; Gueye, 2003). These views are supported by several research findings conducted over several African countries (Gwatkin, 2000).

In some parts of Ethiopia for instance, studies found that smallholder village chicken owners sell chicken and eggs to purchase food items, to cover school fees, to get cash for grain milling services, to purchase improved seeds and to adjust flock size. Other farmers in central highlands of Ethiopia exchange their free range chicken for food and household items (Aberra, and Tegene, 2007), while in some cases in South Africa, chickens are sold or battered to meet essential family requirements (Svedberg, 2003).

In addition, Mtileni et al., (2009) found that indigenous chickens in South Africa contribute significantly to the livelihood of rural communities. In Ghana, research findings revealed that indigenous chickens make vital contributions to the total household and farm enterprise in northern Ghana. In a study carried out on the Coastal Savanna village, chickens were found to play a very important role in the economy of rural parts of Southern Ghana. They are generally kept for meat and eggs and to generate income for family needs Derek, (2008).

2.9.2 Food Security

Indigenous chicken production is an important agricultural activity of almost all rural communities worldwide. They provide cheap readily harvestable protein for immediate home consumption (Alders and Spradbrow, 2000). Indigenous chickens supply meat that has specific texture and tastes contain low fats and are thus preferred by most consumers (Muchadeyi, Eding, Wollny, Groeneveld, Makuza, Shamseldin, Simianer and Weigend, 2007). This is supported by (Derek 2008) who found that local chicken meat is considered tastier and stronger flavored than commercial broiler meat; the meat (muscle tissue) is tougher and retains its texture when prepared in traditional dishes. Another reason why people prefer local chickens is that the birds are not fed with compounded feed which may contain antibodies, anti moulds compounds, enzymes, sulphur drugs and other medicines or synthetic chemicals Barua and Yoshimura, (2005). According to Ssewanyana et al. (2003b), people prefer indigenous

chickens to exotic chickens because of their meat's aroma and taste, their tolerance to local diseases and ability to scavenge for themselves.

They contribute significantly to poverty reduction, food security and the promotion of gender equality, especially in disadvantaged groups and less favoured areas of rural Africa (Sonaiya, 2007). This is further supported by Gondwe (2004) who argued that indigenous chickens constitute a significant contribution to human livelihoods through the improvement of food security for poor households. In Ethiopia, Tadelle et al. (2003) found that majority of people who keep these chickens do so because of their ability to provide a valuable source of family protein and income.

In Limpopo province, improved indigenous poultry production offers a viable approach to improving nutritional and economic status of the rural households. Improvement in genetic potential of the indigenous chicken should be accompanied by a concomitant improvement in the standard of management with particular attention to their nutrient requirements in order to enhance food sufficiency and economic empowerment of the rural people (Gondwe, 2004).

Due to the fact that Indigenous chickens provide scarce animal protein in the form of meat and eggs, as well as being a reliable source of petty cash, they can, therefore, be a useful vehicle for poverty alleviation and hence the improvement of rural livelihoods in Tshikota community (Goromela et al., 2007). However, there is a dearth of information regarding the use of indigenous chickens as a vehicle for alleviating poverty in Limpopo Province of South Africa. For this reason it is crucial to determine the contribution of indigenous chickens to the improvement of the rural livelihoods in Tshikota community. The productivity of indigenous chickens is, however, associated with a number of challenges.

2.9.3 Socio-Cultural and Religious Ceremonies

In addition to being the source of livelihoods to families in the country side of most African countries, indigenous chickens also play a role in socio-cultural and religious ceremonies (Mack Hoffmann and Otter, 2005) in these communities, free range chickens are commonly used in many social and cultural functions and contribute significantly to the livelihoods of farmers. All

this depends on the socio-economic status of each rural household (Mapiye et al., 2008). In some countries, indigenous chickens are used as cultural presents for newly married women (Alders and Spradbrow, 2000) while Ssewanyana et al. (2003b) found that in some African countries, indigenous chickens are used in socio-cultural functions such as marriages, funerals and baptismal parties. Chickens are given as sacrificial offerings to appease avenging spirits.

In Uganda, Sonaiya (2007) reports that in Buganda a cock with spotless white plumage is used as an offer to *Mukasa*, meaning "god of waters". Other gods are offered birds of various colours depending on the case and god/goddess involved. Eggs of local chicken play a major role in the Luo tradition and culture where they can be used to cleanse or to complete a ritual, like eggs being used in the last funeral rites ceremonies (Sonaiya, 2007).

Traditionally, indigenous chickens are used for baby naming ceremonies and also as traditional herbal medicine called "Jamu" which is very popular in Indonesia (Muchadeyi et al., 2007). In some cases, farmers give chickens and eggs as gift to visitors and relatives (Branckaert, Gaviria, Jallade and Seiders, 2000). In Uganda for instance, (Sonaiya, 2007) reveal that chickens are given to convey value to a relationship or to offer thanks to a favor.

In some countries, chickens are served as a meal to special guests or at ceremony gatherings such as marriage feasts, weddings and funerals. They are used to strengthen relationships with in-laws and to maintain family contracts by entrusting them to other family members (Alders and Spradbrow, 2000). In Uganda, village chickens also fulfill a range of other functions for which it is difficult to assign a monetary value. They provide manure, are required for special festivals to meet social obligations, and they are essential for many traditional ceremonies and treatment of illness (Stephenson, 2009). Usually the rearing of indigenous poultry is the domain of women, as they are the ones responsible for household maintenance, while men usually leave homes in search of employment (Gueye, 2008). In Africa Indigenous chickens are the most important agricultural activity. This includes the rural areas of Limpopo Province.

2.10 Marketing of Indigenous Chickens in South Africa

The success of a chicken production enterprise is judged by the quantity and quality of products sold (number of chickens and eggs) and consequently, the amount of profit gained (Mapiye et al., 2008). According to Helsinki (2006), understanding of village marketing structure is a prerequisite for developing market opportunities for rural households and could be used to inform policymakers and development workers in considering the commercial and institutional environment in which village chicken keepers have to operate. However, most studies have revealed that lack of well planned marketing strategies continue to be a major problem hindering the success of most indigenous poultry farmers (Stephenson, 2009).

In Zimbabwe, Kondombo (2005) found that the lack of markets and marketing skills are some of the major drawbacks of village chicken production system. According to Mapiye et al. (2008) most Zimbabwean farmers depend on hawkers or middlemen who buy birds for urban markets. The principal reason for this practice is that meat and eggs are perishable goods and that their financial position is poor, they are encouraged to use the shortest routes to the customers to avoid loss of profits by going via the middlemen.

Indigenous chicken marketing system in South Africa, Limpopo and even in the researched area Tshikota is simple and direct. This might be simple due to the small number of chickens sold per household (UNDP, 2007). Indigenous chickens are rarely sold at market places owing to the high transport costs, as well as lack of access to local chicken markets (Muchadeyi et al., 2007). Marketing of chickens is done in two main ways. The first is at village level where farmers sell chickens, chicks and eggs to their neighbors. The second is at the pensioner payment spot where farmers sell to the pensioners as this is the most preferred food to pensioners (Abdelgader, Wolly, and Gaulty, 2007). The chicken price in summer increases due to the fact that the performance of chickens in terms of egg production and survival rates is high compared to winter. Female chickens attract a high price because of a greater market demand.

Barua and Yoshimura, (2005) identified the following types of markets that exist in the indigenous chicken industry:

- a) Informal Markets: These are within the villages, possibly selling from farmer to farmer or to retailers. Often chickens are bartered for larger animals such as goats.

- b) Primary markets: Are generally formed by several villages within a parish. Often, they are unfenced areas with few or no facilities (perimeter fence, loading ramp, holdings and toilets). They are held on gazette days of the week. Traders also purchase chicken from adjacent several primary markets, during the course of a week and truck them to their destinations.
- c) Secondary markets: They normally have a larger throughput than that of primary markets but also lack proper weighing, loading and hygienic facilities. Traders often come with trucks to buy local chicken for immediate transportation to larger centers.
- d) Urban markets are found in larger towns and cities. Often there are designated areas where mobile chicken stalls are erected. Local governments tax operators of such units. Consumers from such urban markets are hotels, restaurants and some affluent city dwellers.

2.11 Opportunities and Limitations of indigenous Farming

2.11.1. Opportunities

Perhaps one of the biggest advantages is that they are easy to acquire and, under improved management, their reproduction and production is high enough to realize faster income generation due to the minimal initial investment. In rural communities, free range chickens contribute significantly to the livelihoods of farmers (Laker, 2006). Furthermore Gueye (2008) found that chickens are not labour intensive, they can be kept as a sideline enterprise and they require less land resource. According to Gueye (1998) these kind of chickens are easy to maintain and this is attributed to the very low land, labor and capital inputs. This, therefore, means that they can be kept by even the poorest social strata of the rural populace (Gueye, 1998). According to Ranwedzi (2002), the chickens are inexpensive to maintain because they are fed with household wastes and most of their times are spent in scavenging.

Another opportunity which perhaps makes the rearing of indigenous chickens more attractive to rural folks is that these chickens tend to be very robust and are well adapted to harsh environmental conditions such as hot or cold weather, rain and periodic feed shortages.

Furthermore, they have been found to thrive well under adverse environments such as poor housing, management and feeding with variable temperature and humidity (Helsinki, 2006).

2.11.2 Limitations to indigenous chicken production

One of the major constraints to village poultry production is undoubtedly the existence of various diseases which results in high mortality rate. Among the diseases most commonly recognized is Newcastle disease, which has been ranked the most important Oshaug and Haddad (2009). Mortality affects the sustainability and productivity of indigenous chicken enterprises. Almost 73.3 % of the chickens' deaths in South African farms are according to the farmers' perceptions and not laboratory diagnosis mainly due to the Newcastle disease, (Alders and Spradbrow, 2000). This problem is made worse by farmers' lack of knowledge on how to deal with the diseases when they occur. The lack of knowledge in disease management was well reported by (Mapiye and Sibanda, 2005) who found that in times of disease occurrence, smallholder farmers either do nothing, use ethno-veterinary medicine, modern (conventional) medicine or medicine originally intended for humans (Mapiye and Sibanda, 2005). Smallholder farmers' preference of using traditional medicine has been attributed to factors such as its low cost, local availability, easiness of application and it does not require modern technologies such as refrigeration (Mapiye et al., 2008; Bogalle, 2010).

Mortality has also been attributed to wild animals such as foxes, wild cats, eagles and dogs (Aberra and Tegene, 2007), which are highlighted as the most common predators during the dry season. Predation by both domesticated and wild animals is also a major problem facing the smallholder farmers. According to Solomon (2007), full day scavenging chickens are vulnerable to predation. This is because of their need to leave the family dwelling to scavenge for feed which makes them susceptible to predation. The further they move away from the family dwelling, the greater the danger of being killed. Predators such as dogs, cats, snakes, eagles, hawks and thieves have been found to be responsible for high mortality of chicks in most areas contributing to substantial losses of the flock (Mapiye et al., 2008; Bogalle, 2010).

In Ethiopia, Moges, Tegegne and Dessie (2010) found that predation is one of the major constraints in village chicken production in the northwest region that country with farmers pointing out the wild Egyptian Vulture (locally called 'chilfit') as the most dangerous predator, attacking up to 73.2 % of chicks. In addition, mongoose kill 36.8 % of chickens and wild cats (3.9 %) being the other important predators. Predation is predominant in households which do not provide shelter for the chickens (Shrestha, 2005). However, wild cats (locally known as Mutsherere) in Tshikota area are the most dangerous predator during the rainy season (Aberra and Tegene, 2007).

In Tshikota community most chickens are not fed thus the high chicken mortality could be because of poor nutrition (Moyo and Masika, 2009). The farmers included parasites and infestation among the major constraints of chicken production in Centane district of the Eastern Cape Province of South Africa (Mwale and Masika, 2009). According to Muchadeyi et al. (2007) in extensive management systems where chickens have access to outdoor areas and are not confined, there is a greater diversity of parasite infections. The commonly reported external parasites were lice, flies and mites (Moyo and Masika, 2009). The internal parasites were described by the farmers as worms expelled with faeces (Antony, Fyfe and Smith, 2005; Mwale and Masika, 2009). In Ethiopia Tedelle et al. (2003) found that village chicken production systems are characterized by low input–low output levels. A range of factors such as suboptimal management, lack of supplementary feed, low genetic potential and high mortality rate are the major causes for the apparent low output level.

2.12 Theoretical Framework of the Study

Africans have been involved in household poultry since the beginning of time. Nearly all rural and peri-urban families in the developing world keep poultry (Bogalle, 2010). Kitalyi (1998) as cited in Bogalle (2010) points out that in the African continent, village poultry contributes over 70 % of poultry products and 20 % of the animal protein intake. In East Africa in particular, over 80 % of the human population lives in rural areas where more than 75 % of the households keep indigenous chickens (Kitalyi, 1998). In addition to being an affordable source of protein for rural folks, household poultry also provide the families with a much needed income. This is supported by Flyman and Afolayan, (2006) who found that poultry serve as a source of self-reliance with

both the poultry and egg sales providing households with an immediate income to meet household expenses and sources of food.

Perhaps the major advantage to be revealed by the literature is that of their low management and low cost of inputs which makes it

Mapiye et al., (2008) further found that Indigenous chickens are used as buffers or banks in certain cases because they are often sold to pay for school fees, medical costs, village taxes and other uncertainties. Because of its income-generating potential, household poultry has been found to possess a unique position in the rural household economy and also plays a significant role in the religious and cultural life of the society Tadelle et al. (2003). This means that if well-run, indigenous chickens can be a useful vehicle for poverty alleviation and the improvement of rural livelihoods in the Tshikota community. However, there is a dearth of information regarding the use of indigenous chickens as a vehicle for poverty alleviation in Limpopo Province, South Africa. For this reason, it is crucial to determine the contribution of indigenous chickens to the improvement of the rural livelihoods in the Tshikota community.

Based on the above discussion, the study thus attempts to examine those issues outlined in this conceptual framework in greater depth. Using the above framework, the researcher also considered the relationships between indigenous poultry farming, food security and poverty alleviation amongst the farmers. Therefore, the review of the literature and the analysis of findings made an attempt to address all these variables in the study as they are the key to understanding the rest part of the dissertation.

2.12 Summary of Review of Literature

The review of literature has revealed several key aspects involved in the running of the indigenous chicken farming business. Perhaps the most key finding to be revealed is that indigenous chickens are not only used for income or food security purposes, but that they are also used in socio-cultural and religious ceremonies. The literature further revealed that these practices are not only limited to South Africa, but also in other countries such as Uganda and Ethiopia.

Other key findings to be revealed are that involvement in the indigenous chicken farming business has its own advantages and disadvantages. Perhaps the major advantage to be revealed by the literature is that of their low management and low cost of inputs which makes it easy to rear the chickens. The two major disadvantages are the diseases which result in high mortality rate due to poor disease control and management. The second disadvantage is the chickens' susceptible to predators. This is caused mainly by their need to leave the family dwelling to scavenge for feed which makes them susceptible to predation and that most are not provided with housing.

data collection methods and techniques, data analysis and research ethics that were adhered to.

3.2 Description of the Study Area

As shown in Figure 3.1, Tshikota is a township located on the outskirts of Louis Trichardt (Makhado) town. Louis Trichardt is situated in Makhado Municipality within Vhembe District of Limpopo Province. There are approximately 9 000 people who reside in Tshikota township. They consist of both formally and informally employed people. About 755 households keep indigenous chickens (Muthambi, 2009). The township was originally developed in the 1950s. However, its residents were forcibly removed under apartheid legislation. Plans to re-establish the township got underway in 1991 with the development of 600 stands (Cattell and Bosden, 1999). Some of the challenges facing the residents of Tshikota include damaged streets, the high cost of graves and the lack of fences at the graveyard, erratic water supply, inadequate street lighting and poor sports grounds. Another concern which the community has is lack of toilet facilities in the newly built Reconstruction and Development Programme (RDP) houses. As a result, community members are forced to relieve themselves in the nearby bushes. This is a very serious challenge to sanitation and often increases the spread of cholera in the area (Muthambi, 2009).

CHAPTER 3: RESEARCH METHODOLOGY

3.1 Introduction

This chapter provides the description of the study area, research design, population and sampling procedures, data collection methods and techniques, data analysis and research ethics that were adhered to.

3.2 Description of the Study Area

As shown in Figure 3.1, Tshikota is a township located on the outskirts of Louis Trichardt (Makhado) town. Louis Trichardt is situated in Makhado Municipality within Vhembe District of Limpopo Province. There are approximately 9 000 people who reside in Tshikota township. They consist of both formally and informally employed people. About 786 households keep indigenous chickens (Muthambi, 2009). The township was originally developed in the 1950s. However, its residents were forcibly removed under apartheid legislation. Plans to re-establish the township got underway in 1991 with the development of 600 stands (Cattell and Boaden, 1999). Some of the challenges facing the residents of Tshikota include damaged streets, the high cost of graves and the lack of fences at the graveyard, erratic water supply, inadequate street lighting and poor sports grounds. Another concern which the community has is lack of ablution facilities in the newly built Reconstruction and Development Programme (RDP) houses. As a result, community members are forced to relieve themselves in the nearby bushes. This is a very serious challenge to sanitation and often increases the spread of cholera in the area (Muthambi, 2009).

Figure 3. 1: Map of Tshikota Township in Makhado Municipality of Limpopo Province

7.2 Research Design

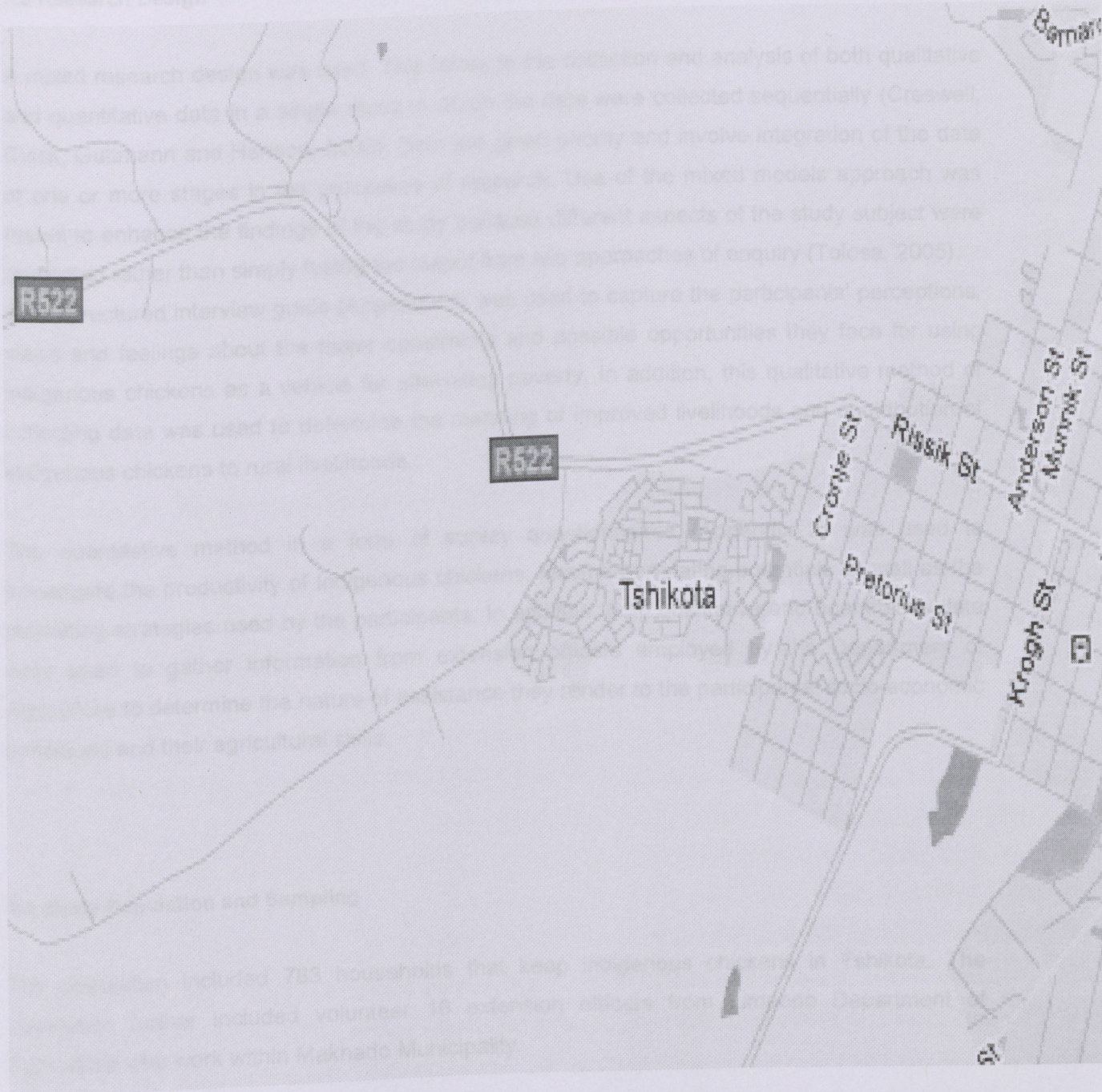


Figure 3. 1: Map of Tshikota Township in Makhado Municipality of Limpopo Province

3.3 Research Design

A mixed research design was used. This refers to the collection and analysis of both qualitative and quantitative data in a single study in which the data were collected sequentially (Creswell, Clack, Guttman and Hanson, 2003). Both are given priority and involve integration of the data at one or more stages in the processes of research. Use of the mixed models approach was meant to enhance the findings of the study because different aspects of the study subject were presented rather than simply fusing the output from two approaches of enquiry (Tolosa, 2005). Semi-structured interview guide (Appendix 1) was used to capture the participants' perceptions, views and feelings about the major constraints and possible opportunities they face for using indigenous chickens as a vehicle for alleviating poverty. In addition, this qualitative method of collecting data was used to determine the meaning of improved livelihoods and contribution of indigenous chickens to rural livelihoods.

The quantitative method in a form of survey questionnaires (Appendix 2) was used to investigate the productivity of indigenous chickens, income-generating potentials as well as the marketing strategies used by the participants. In addition, both qualitative and quantitative data were used to gather information from extension officers employed by the Department of Agriculture to determine the nature of assistance they render to the participants' socio-economic conditions and their agricultural skills.

3.4 Study Population and Sampling

The population included 783 households that keep indigenous chickens in Tshikota. The population further included volunteer 16 extension officers from Limpopo Department of Agriculture who work within Makhado Municipality.

3.5 Sampling Procedure

A multi-stage sampling method was used to select the desirable sample to be included in the study. The relevant respondents in this study were indigenous chicken farmers in Tshikota area and extension officers working in the Makhado office of the Limpopo Department of Agriculture. In selecting the indigenous farmers for this study, the snowball sampling procedure was used. The required sample consisted of 25 % of the population of indigenous chicken farmers. There are 783 indigenous chicken farmers in Tshikota village. Snowballing involved identifying one farmer, approach him/her, and after gathering data from him/her then request him to refer the researcher to other farmers in the area. This was done until 196 farmers (25 % of 783) were interviewed.

Extension officers were selected using the simple random sample technique as well as 20 community members that served as key informants for the qualitative data. A complete frame list of all the extension officers working for Makhado office was obtained. Four (25 % of the population) extension officers were individually interviewed. The interviews with the extension officers were conducted in their work offices. In the formulation of focus groups, community members were divided into two groups (10) in each, a combination of male and female people. The well trained researchers met each group separately over a period of two days. The researcher assigned numbers to each group member for identification purposes and the proceedings were tape-recorded for precision purposes.

3.6 Data Collection

Data collection was carried out using a combination of both primary and secondary techniques. As of the collection primary data ethical clearance was sought first and acquired from the ethical clearance committee of the University of Venda. The primary data was collected over a period of two weeks. In order to collect first hand data on the dynamics and complexities of the topic under study, primary investigation was undertaken through interviews and questionnaires to the focus group and key informants. This was done one after the other, starting by the key informants, focus group followed by extension officers. Same data collection tools were used. Responses from qualitative data, key informants, focus group informed the development of the

questionnaire. Questions used in related to peoples' opinion about the productivity of indigenous chickens, their income-generating potentials and the marketing strategies used by the participants, as well as the role that the business plays in improving the socio-economic standings of the participants.

3.6.1 Primary data

Various methods were used to collect necessary data from primary source which mainly comprises of key informants, focus group and extension officers. These included interviews, focus group discussions and questionnaires. The data collected included household socio-economic characteristics, management interventions, sources of household income.

3.6.1.1 Semi-structured interviews

Semi-structured interviews were used to collect qualitative data. The method was ideal since it allowed for deviation from the interview schedule and probed further when and if the need arose. The method was used with the extension officers to interrogate the role of the government and Department of Agriculture in particular, in the success of indigenous chicken farmers and their use in enhancing rural live hoods. The method was also used to collect data from farmers on the major constraints and possible opportunities for using indigenous chickens as a vehicle for alleviating poverty. Okitoi, Ondway, Obali and Murekefu (2007) survey uses semi structured interview schedule and focus group discussions to collect household socio-economic characteristics, management interventions adopted, access to extension services and credit facilities, distance to major market outlet and source of household income.

The interviews with farmers were conducted in Tshivenda, which is the language most commonly spoken in the area. Prior to the data collection, the participants' permission to use a tape recorder during interviews was sought. Recording the interviews allowed the researcher to focus more on recording participants' facial expression and other body language without having to worry about missing out on what was being said.

3.6.1.2 Focus group discussions

Focus group discussions were used to gain a deeper insight into the feelings and views of the participants regarding indigenous chickens. Two groups each with 10 community members were formed for the purpose of focus groups. The focus group discussions were useful in this study for several reasons. A focus group discussion helped concentrate on a specific area of interest that allowed participants to discuss their issues freely and in greater detail. In addition to this, participants discussed common experiences and group members worked together to explore issues that bother them (Liamputtong and Ezzy, 2005). The focus group meetings were held with participants not exceeding ten at a time per session lasting not more than two hours.

3.6.1.3 Survey Questionnaire

According to Ssewanyana et al. (2003) base line survey to document the current chicken farmer's management practice is crucial and best carried out using a structured questionnaire. Thus, in the current study a structured questionnaire was used. Research assistants were well trained before formal questionnaire was administered to the indigenous farmers. 100 questionnaires were prepared and all were successfully administered. The research made use of the services of research assistants during the survey that assisted with the administration of the questionnaires. The questionnaire covered the following broad themes; the biographical data of the respondents, questions on the marketing strategies used, impact in the income made from the sale of the chickens has on the household expenditure of the farmers, relevant training obtained by the farmers on the rearing of indigenous chickens, as well as the expansion plans of the farmers.

3.6.1.4 Secondary data analysis

Prior to the primary data collection process, past research documents were analyzed. Published and unpublished reports on indigenous chickens, their role as a poverty alleviation initiative in developing countries were reviewed. Evidence from countries in Asia, South America and Africa

were analyzed to find out how indigenous poultry had been used as means of survival for poor communities. The role of the government, particularly the Department of the Agriculture in assisting budding subsistence indigenous farmers turn into commercial farmers were also considered. Possible sources of information included the Department of Agriculture's strategic documents, Integrated Development Plans (IDPs) of Vhembe District Municipality and Makhado Municipality, Statistics South Africa 2000, 2002 and 2004 census reports; private and public institutions, policy documents, unpublished reports, government documents and policies, published reports (research studies/ Case studies and so on), newspaper articles, other media coverage and any other authentic available sources of information that are documented. The collection of data and related analyses are summarized in Table 3.1.

3.7 Data Analyses

Data analysis is the process of bringing order and meaning to the collected data. It involved preparing data, conducting various analyses, and interpreting the data (Creswell, 2003). In this study, both the qualitative and quantitative collected data were analyzed first in Tshivenda, the language in which interviews were conducted, and then in English. The researcher made use of the Thematic Content Analysis to analyze the collected qualitative data, while the Statistical Package for the Social Sciences (SPSS, 2011), version 19 was used to analyze quantitative data. Descriptive statistics, cross-tabulations, chi-square and correlations were computed.

3.8 Ethical Considerations

Although the participants in this study were not manipulated as is normally the case in experimental research, various aspects related to ethics were taken into consideration. Anonymity was observed so as to ensure that the reader of the report cannot identify participants at any time (Holloway, 1997). This was done through using codes and numbers when recording the participants' responses, instead of their real names. Prior to the commencement of the data collection process, informed consent of the participants was

obtained. Participants were requested to sign a consent form before they became involved in the study.

Confidentiality was maintained through assuring the participants that the information they provided was not to be disclosed to anyone else. Also, assurances were given that the data was to be used for academic purposes only. This encouraged the participants to feel free to disclose information knowing that whatever they said was not going to be used to disadvantage them and the running of their businesses.

Table 3.1: Summary table of sampling, data collection and analysis

Objective	Population	Sampling method	Data collection method	Data analysis
to determine the effectiveness of indigenous poultry farming as a vehicle for poverty alleviation in rural areas	Indigenous chicken farmers, Extension officers	Snowball sampling Random sampling procedure	Focus group discussion/ Key informant interviews and questionnaire	Thematic analysis Descriptive tabulations correlations
Investigate the marketing channels and key players in the poultry marketing system	Indigenous chicken farmers	Snowball sampling and random sampling procedure	Questionnaire	Descriptive tabulations correlations
Identify the major constraints and possible opportunities for using indigenous chickens as a vehicle for alleviating poverty in Tlokweng community	Indigenous chicken farmers, Extension officers	Snowball sampling and random sampling procedure	Focus group discussion/ Key informant interviews and questionnaire	Thematic analysis Descriptive tabulations correlations

Table 3.1: Summary table of sampling, data collection and analysis

Objective	Population	Sampling method	Data collection method	Data analyses
to determine the effectiveness of indigenous poultry farming as a vehicle for poverty alleviation in rural areas	Indigenous chicken farmers, Extension officers	Snowball sampling Random sampling procedure	Focus group discussion/ Key informant interviews and questionnaire	Thematic Content Analysis Descriptive statistics, cross-tabulations, chi-square and correlations
Investigate the marketing channels and key players in the poultry marketing system	Indigenous chicken farmers	Snowball sampling and random sampling procedure	Questionnaire	Descriptive statistics, cross-tabulations, chi-square and correlations
Identify the major constraints and possible opportunities for using indigenous chickens as a vehicle for alleviating poverty in Tshikota community.	Indigenous chicken farmers, extension officers	Snowball sampling and random sampling procedure	Focus group discussion/ Key informant interviews and questionnaire	Thematic content analysis; Descriptive statistics, cross-tabulations, chi-square and correlations

CHAPTER 4: RESULTS OF QUALITATIVE STUDIES

4.1. Introduction

This study aimed at determining the contribution of indigenous chickens to the improvement of livelihoods of the Tshikota community in Makhado Municipality. In this chapter the findings from the qualitative data are presented in accordance with the objectives of the study. The data obtained from the respondents for this study was used to make inferences about the entire study. This chapter also presents an explanation of the findings of the qualitative data.

4.2. Improved Livelihoods

Table 4.1 shows that only one male extension officer perceived improved livelihoods as the community's ability to make use of the available resources for the betterment of their lives. On the other hand, three of the respondents (1 Male extension officer, 1X Female extension officer and 1x group of Community Members) perceived jobs created for previously unemployed people as an indication of improved livelihoods. Only one male extension officer perceived the presence of capabilities, assets and activities required for a means of living as a sign of improved livelihoods. Extension officers and community members identified the jobs created through indigenous farming as indicators of improved livelihoods for the farmers residing in Tshikota area. In addition to jobs that are created, the two male extension officers interviewed indicated that better living conditions in terms of money indigenous farmers' families make is an indicator of improved livelihoods. Furthermore, two respondents perceived the community members' ability to afford daily life essentials as improved livelihoods while only one person perceived the families' ability to support families through buying groceries and paying school fees as a sign of improved livelihoods. Lastly, only a community member perceived having good infrastructure such as access to Toilets and electricity as improved livelihoods

Table 4.1. Improved livelihoods as perceived by the community members and Extension officers in Tshikota community

Perception on what rural livelihoods is	Extension officers male	Extension officers female	Community members group A -10 M/F	Community members group B -10 M/F	Tally
a) When people get jobs	X	X	X		3
b) Better living in terms of money	X X				2
c) When community is able to get daily life essentials		X	X		2
d) Comprises of the capabilities, assets and activities required for a means of living	X				1
e) When the community is able to make use of the available resources for the betterment of their lives	X				1
f) Ability to support families through buying groceries and paying school fees				X	1
g) Good infrastructure Toilets and electricity				X	1

4.3. Contribution of Indigenous Chickens to Rural Livelihoods

Extension officers and community members identified the contribution of indigenous chickens to livelihoods as that of providing meat to the farmers and their families. There was also an agreement amongst the extension officers and the community members that another major contribution of the indigenous chickens is the provision of eggs (Table 4.2). Extension officers and community members further identified chicken waste as indigenous chickens' contributor to livelihoods as it is a good source for improved soil structure. Only one male extension officer believed that the feathers of Indigenous chickens can improve the livelihoods of the farmers through the making of clothes. Male extension office identified the nutritional role that poultry meat and eggs play in preventing malnutrition by providing proteins through meat and eggs, thus improving the livelihoods of the farmers and their families. Three categories of respondents (male extension officer, female extension officer and group A and B community members) identified income generation through chicken sale as a significant indicator of improved livelihoods. Focus group A of the community members are of the view that Indigenous chickens improve the livelihoods of farmers and their families by ensuring that families are able to pay their children school fees, medication and transport.

4.4. The Major Contributors to Improved Livelihoods

Table 4.3 shows that almost all respondents have identified food security as a major contributor to improve livelihoods. There is also a concern amongst respondents that adult, primary, secondary and tertiary schools also play a pivotal role as contributors to improved livelihoods. However the same could not be said about the role of community structures (civic organizations and churches) in improving livelihoods, with only 1 male extension officer and 1 community worker identifying them as main contributors. Furthermore, only one male extension officer identified health as a contributor to improved livelihoods

Table 4.2. Contribution of indigenous chickens to each element of rural livelihoods in Tshikota community

Contribution of indigenous chickens to livelihoods	Extension officers Male	Extension officers female	Community members Group A	Community members Group B	Tally
Indigenous chickens provide meat	XXX	X	X		5
Chicken waste is good source for improved soil structure e.g. community garden	XX	X	X	X	5
Indigenous chickens provide eggs	XX	X	X		4
Chickens improve lives through income generation	X	X	X		3
Indigenous chickens provide feathers for making clothes	X				1
Indigenous chicken meat has specific texture and tastes. (sanco) etc)	X				1
They prevent malnutrition by providing proteins through meat and eggs	X				1
Indigenous chickens improve lives at home, through paying children school fees, medication and transport				X	1

4.5. Challenges Faced by Indigenous chicken producers

Table 4.3. The major contributors to improved livelihoods of rural households in Tshikota community

Response	Extension officers Male	Extension officers F	Community Group A	Community Group B	Tally
Food security e.g. community garden or any related issues.	XX X	X	X	X	6
Education Project, ADULT, secondary and Tertiary schools	XXX	X	X	X	6
Activities done by different structures (civic, South National Organization (sanco) etc)	X			X	2
Health					

4.5. Challenges Faced by Indigenous chicken producers

Table 4.4 highlights the challenges facing the indigenous chicken farmers of Tshikota village as identified by the respondents. Both male and female extension officers as well community members identified the lack of funds for chicken feeds as the main obstacle facing the indigenous chicken farmers in Tshikota community. Male extension officers as well as one focus group B of community members have also identified difficulties in constructing chicken housing as another challenge facing indigenous chicken farmers of Tshikota community. As shown in the Table 4.4, male extension officers identified difficulties in constructing chicken housing, predators and thieves as other major challenges facing indigenous chicken farmers living at Tshikota. All respondents indicated that lack of market is another challenge facing the farmers. The male extension officers identified lack of security as one of the challenges facing the farmers.

feeds are lacking

Difficulties

in

4.6. The possible solutions to the abovementioned challenges

constructing chicken

There seems to be consensus amongst the respondents that government subsidy will go a long way in solving the challenges facing indigenous farmers (Table 4.5). In addition, the male extension officers have identified subsidy from commodity group approach as another possible solution that can be explored to deal with the identified challenges. Proper fencing has also been identified as a possible solution, with 4 respondents (2x male Extension Officers, 1x female extension officer and 1x community member group B) stating that farmers should consider erecting a proper fence to prevent their chickens from wondering off. Perhaps one of the most important solutions identified is the role of Veterinarian services to indigenous farming, with 6 respondents (4x male extension officers and 2x both group A and B community members) indicating that the services of Veterinarians will play a major role in curbing the high mortality rate of chickens. One of the surprising finding to be revealed is that respondents don't consider markets like Woolworths and pay points as a possible solution, with 2 respondents identifying Woolworths and 1 identifying pay points, respectively.

Table 4.4. Challenges faced by the community in rearing indigenous chickens

Table 4.5. The possible solutions to the challenges of rearing indigenous chickens

Challenges faced when farming with chickens	Extension officer	Extension officer	Community		Tally
	Male	Female	M/F Group A	M/F Group B	
Funds for chicken feeds are lacking	XXX	X	X	X	6
Difficulties in constructing chicken housing	XXX	X	X	X	6
Theft	X	X	X	X	4
Predators	XXX	X	X	X	4
Diseases	XXX			X	4
Indigenous chickens market is a problem	X	X	X	X	4
Security is lacking	X				1

4.7 Discussion of findings

The fact that both the Extension Officers and community members perceived that better living conditions in terms of money, nutritious homes, farming, make is an indicator of improved livelihoods shows how important a role extension officers played in the lives of the farmers. In addition, improved living conditions also improved the community's ability to make use of the available resources for the betterment of their lives and as jobs created for previously unemployed people. The extension officers also played a role in the community's involvement in indigenous chicken rearing. These community members will

Table 4.5. The possible solutions to the challenges of rearing indigenous chickens

Possible solutions to challenges faced when farming with chickens	Extension officers	Extension officers	Community GROUP A	Community GROUP B	Tallies
	Male	Female			
Accessing government subsidy	XXX	X	X	X	6
Veterinarian for chicken's diseases	XXX	X	X	X	6
Good fence to prevent theft	XX	X	X		4
Subsidy from commodity group approach	XXX				3
Woolworth store could be a market for selling chickens	X			X	2
Market for selling chickens could be old aged pay points	X				1

4.7 Discussion of findings

The fact that both the Extension Officers and community members perceived that better living conditions in terms of money indigenous farmers' families make is an indicator of improved livelihoods shows how important a role chickens are expected to play in the lives of the farmers. In addition, improved livelihoods was perceived as the community's ability to make use of the available resources for the betterment of their lives and as jobs created for previously unemployed people. This is because rural village is more often than not associated with unemployment, poverty and poor living conditions amongst its residents. It is, therefore, common for residents to involve themselves in informal income generating activities that require minimal financial input. The residents involve themselves in these activities with the hope that they will bring in some money which will subsequently lead to an improved livelihoods. The same drive is behind most Tshikota subsistence indigenous farmers' involvement in indigenous chicken farming. These community members will therefore gauge their success through their families' improved livelihoods and their ability to meet the family's basic needs. According to Mogesse (2007) the local chicken sector constitutes a significant contribution to human livelihood and contributes significantly to food security of poor households.

Furthermore, it was not surprising that respondents identified the families farming with indigenous chickens' ability to afford daily life essentials such as groceries and paying school fees as a sign of improved livelihoods. Indigenous chickens have been found to play a pivotal role with several research findings revealing that most African families, particularly in rural areas rely on chickens to meet their basic needs. These submissions are supported by Goromela et al. (2007) who found that indigenous chickens are a very useful vehicle for poverty alleviation and the improvement of rural livelihoods. These findings are further consistent with those of Duflo (2008) whose study in Southern Ghana revealed that village chickens play a very important role in the economy of rural areas. Farmers use income from village chickens to meet personal needs such as paying the hospital bills, supporting crop farming, paying school fees and paying debts. Furthermore, most of these families rely mostly on chickens for petty cash and would from now and then sell the chickens to pay for children's school fees and cover other households' expenditures. These families keep the chickens and only sell whenever there is a financial need that the family must satisfied (Mapiye and Sibanda, 2005).

In addition to providing monetary inputs to the household income of the farmers, indigenous chickens also contribute to the livelihoods of the farmers by providing meat to the farmers and their families. The results are consistent with that of Mtileni et al. (2009) who found that indigenous chickens perform significant functions in the livelihoods of rural farmers primarily for household meat, egg consumption and to a lesser extent for manure, cultural ceremonies and income generation. According to Marais et al. (2008) free range chickens constituted about 80 % of the country's rural poultry flock and were found to be a major source of readily available protein in the form of eggs and meat. It was therefore not surprising that respondents in this also identify the chickens' ability to provide protein-rich eggs and meat as a sign of improved livelihoods in farmers' households. This is mainly because the nutritional role that poultry meat and eggs play in preventing malnutrition by providing proteins through meat and eggs, thus improving the livelihoods of the farmers and their families. These findings are consistent with the findings of Kondombo, (2005) who found that in Northern Ghana, village chickens and other local poultry are kept for protein nutrition and as a means of sustaining or improving livelihoods in rural areas. Together with livestock they make vital contributions to the total household and farm enterprise.

It was interesting to note that respondents also identified the role of chicken waste as another contributor to livelihoods as it is a good source for improved soil structure. It is a well known fact that rural villagers also rely on the soil as a source of food. They use traditional methods such as hoeing and sloughing with span of oxen and dinkies to plant maize and beans during the rainy season. Due to lack of funds to purchase commercial manure, most indigenous farmers therefore use chicken waste to enrich the soil with the hope of getting a better harvest. The role of chicken waste was also revealed by Ssewanyana, Ssali, Kasadha, Dhikusooka, Kasoma, Kalema, Kwatoty, and Aziku, (2003) who found that village chickens also fulfils a range of other functions for which it is difficult to assign a monetary value. They provide manure to be used for the tilling of the fields Ssewanyana, Ssali, Kasadha, Dhikusooka, Kasoma, Kalema, Kwatoty and Aziku, (2003).

The fact that diseases have been identified as one of the challenges facing the indigenous chicken farmers is not at all surprising. The findings concur with findings of several studies conducted on several parts of the globe. Throughout the world, poultry diseases have been found to be the main cause of high mortality rate amongst the indigenous chickens. Chicken mortality as a result of diseases has been found to affect the sustainability and productivity of indigenous chicken enterprises (Alders and Spradbrow, 2000). This problem is made worse by farmers' lack of knowledge on how to deal with the diseases when they occur. The

lack of knowledge in disease management was as well reported by Mapiye and Sibanda (2005) who found that in times of disease occurrence, smallholder farmers either do nothing, use ethno-veterinary medicine, modern (conventional) medicine or medicine originally intended for humans. Smallholder farmers' preference of using traditional medicine has been attributed to factors such as its low cost, local availability, easiness of application and it does not require modern technologies such as refrigeration (Mwale and Masika, 2009 and Mapiye et al. 2008).

The provisions of veterinarian services have been identified as one of the solutions that could be implemented to help farmers deal with a variety of common diseases attacking their chickens. There was a consensus amongst all the Extension Officers as well as the community members that the provision of veterinarian is vital for the prevention of chickens' diseases which can subsequently lead to the reduction of high mortality rate that is attributed to the poultry diseases. Veterinarians because of their profession and the nature of their job are equipped with knowledge and skills that put them in ideal position to offer farmers advices on how to deal with disease outbreaks. The current lack of extension and veterinary services is forcing most indigenous farmers to resort to traditional medicines such as aloe, salts to treat their chickens of various chicken diseases (Muchadeyi et al., 2007). In addition, most rural communities farming with chickens cannot afford conventional drugs so they resort to traditional means of treating and controlling diseases in their chickens (Mwale and Masika, 2009). However, the problem with the traditional medicine is the lack of proper and proved dosages, are not easily controlled, and their effectiveness still remains questionable (Mtileni et al. (2009).

The fact that the Extension Officers have identified predators such as wild cats, eagles and dogs is hardly surprising because indigenous chickens are highly susceptible to predation to both domesticated and wild animals. This is because they are forced to leave the protection provided by family dwellings to scavenge for worms and other insects, and also some chickens do not have housing. Tshikota area is predominantly rural with most households without proper fencing. This means that the chickens' movement is unrestricted and they are able to wander off looking for food, making them vulnerable to attacks from the predators. These findings concur with Solomon (2007) who found that full day scavenging chickens are vulnerable to predation. This is because of their need to leave the family dwelling to scavenge for feed which makes them susceptible to predation. The further they move away from the family dwelling, the greater the danger of being killed. Predators such as dogs, cats, snakes, eagles, hawks and thieves have been found to be responsible for high mortality of

chicks in most areas contributing to substantial losses of the flock (Mapiye et al., 2008; Bogalle, 2010).

Furthermore, the fact that both the extension officers have identified the lack of proper housing as another challenge facing indigenous chicken farmers of Tshikota community is a clear indicator of the vital role that proper housing play in the protection of the chickens. Proper structures ensure that the chickens are protected from predators and natural elements and also improve the productivity (Nwagu, 2002). However, while there seems to be consensus amongst respondents that proper housing makes management easier and assists the farmer to successfully rear their chickens to market age in the shortest possible time Mtileni, Muchadeyi, Maiwashe, Phitsane, Halimani, Chimonyo, and Dzama, (2009) reported that most indigenous chicken farmers still find it as a challenge to provide proper housing. According to Flyman and Afolayan (2006) family poultry are sheltered in houses whose standard vary greatly. In many areas no specific housing is provided, and the chickens roost in trees at night and shelter below elevated human dwellings. In some areas primitive poultry houses are built from simple, locally available materials while in other areas the chickens share part of human habitation. This is further supported by Mtileni et al. (2009) who found that 66% of the households kept their chickens in 'poor' housing at night, while 34% of the flocks spent the night in trees or in open spaces. This finding was further supported by Dunkle et al. (2004) who also observed a high proportion of households keeping their indigenous chickens in poor fowl run at night.

Perhaps the most interesting finding to be revealed by the study is that the respondents identified lack of funds that farmers need to purchase chicken feeds. It is quite surprising that the respondents would consider commercial feeds to be a key in the indigenous poultry farming. This finding is in contrast with other findings which revealed that indigenous chickens rely mostly on scavenging practice for feeding purposes. In the study conducted in Ethiopia, Bogalle (2010) found that there was no purposeful feeding of rural household chickens in Ethiopia and that the scavenging feed resource is almost the only source of feed. This finding was also supported by Kondombo, (2005) who indicated that owners rarely provide the birds with food or water but instead farmers allow them to fend for their amenities from the household yards. Laker, (2006) further indicated in few cases where farmers do feed the chickens, they offer them kitchen leftovers such as rice or used coconut pulp or other foods such as vegetable wastes, left over raw fish, rice husks or rice bran). The chickens are also feed on any food material that is cheap and easily available in the village

such as sago and banana trunks. Allowing the chickens to fend for themselves ensures that family poultry rearing remains a cost effective enterprise for the farm because of its little or no financial inputs Sonaiya, (2007).

Summary

Both the Extension Officers and community members perceived that better living conditions in terms of money indigenous farmers' families make is an indicator of improved livelihoods. In addition, improved livelihoods was perceived as the community's ability to make use of the available resources for the betterment of their lives and as jobs created for previously unemployed people. Furthermore, it was not surprising that respondents identified the families farming with indigenous chickens' ability to afford daily life essentials such as groceries and paying school fees as a sign of improved livelihoods. Furthermore, it was not surprising that respondents identified the families farming with indigenous chickens' ability to afford daily life essentials such as groceries and paying school fees as a sign of improved livelihoods. The results are consistent with that of Mtileni et al. (2009) who found that indigenous chickens perform significant functions in the livelihoods of rural farmers primarily for household meat, egg consumption and to a lesser extent for manure, cultural ceremonies and income generation. Throughout the world, poultry diseases have been found to be the main cause of high mortality rate amongst the indigenous chickens. Chicken mortality as a result of diseases has been found to affect the sustainability and productivity of indigenous chicken enterprises (Alders and Spradbrow, 2000). Perhaps the most interesting finding to be revealed by the study is that the respondents identified lack of funds that farmers need to purchase chicken feeds as a problem.

CHAPTER 5: RESULTS OF QUANTITATIVE STUDIES

5.1. Introduction

This chapter presents the findings of quantitative results.

5.2. Biographical information and historical background

More females (67 %) participated in the study than males (33 %). The elderly (51-60 years) were in large numbers (47.3 %) followed by 41-50 years olds (20 %) while those below 20 years were the least (2.2 %). In terms of qualifications there was no particular trend, most farmers acquired secondary education (42.7 %) followed by the uneducated individuals (27 %). About (21 %) had primary education while only (9 %) had tertiary education. At Tshikota community farming with indigenous chickens was the predominant poultry enterprise (57.5 %) followed by broiler production (41.4 %) while layers production was the least (1.1 %). Most of the farmers (48.8%) inherited the indigenous chicken production project from their elders, while (41.9 %) had to purchase the chickens and only (1.2 %) indicated that the government offered them with funds to establish an indigenous chicken project as one of the food security projects for poverty alleviation strategies in the province. About (8%) of the respondents started this project from chickens that they got as presents for their births or given by relatives to start their projects. There was no relationship between highest education level obtained and owning chickens ($\chi^2 = 49.60$; $P > 0.05$).

5.3 Production of Indigenous chickens

Most of the farmers (67.1 %) have their own breeding cocks but 32.9 % did not have, Of the farmers who indicated that they do not own cocks for mating their hens, 43.8 % reported that they borrow from others, another 43.8 % purchase their cocks from other farmers, 6.1 % buy food with fertilizing ingredients, 6.3 % rely on their hens mating with neighbours cocks during the scavenging period (Table 5.1).

Of the farmers who own cocks, 22.8 % reported that 3 months is the age of sexual maturity, 20.8 % indicated it is 3 months another 30.8% indicated it is 5 months while 18.5 % reported it is 6 months (Table 6.2). When asked how long they keep the cock to ensure successful mating the responses were one month (18.2 %), one year (19.2 %) and until death (63.6 %). Majority of the farmers (67.6 %) indicated that they incubate eggs 3 times per year and 20.3

Table 5.1. Source of cocks for mating purposes for farmers not owning cocks

Source for cocks	Proportion (%)
Borrow from others	43.8
Purchase from other farmers	43.8
Rely on scavenging cocks	6.30
Purchased feed specifically for hens to lay eggs	6.1



Of the farmers who own cocks, 22.6 % reported that 4 months is the age of sexual maturity, 20.8 % indicated it is 3 months another 20.8% indicated it is 5 months while 18.5 % reported it is 6 months (Table 6.2). When asked how long they keep the cock to ensure successful mating the responses were one month (18.2 %), one year (18.2 %) and until death (63.6 %). Majority of the farmers (57.6 %) indicated that they incubate eggs 3 times per year and 20.3 % indicated twice per year.

All the respondents (100 %) in Tshikota community reported that they use clay pot and straw bedding as egg setting material. This was followed by use of pot only, teff straw, wheat straw and other types of material by 57, 47.4, 55.6 and 48 % of the respondents, respectively. The respondents (71.1 %) highlighted that there is seasonal variability on hatchability of eggs and that lowest hatchability is experienced in summer (63.8 %), Few respondents (24.1 and 12.1 %) reported that lowest hatchability occurs in winter and spring, respectively. About 84 % of the farmers use mother hen in raising the chickens while 16 % chickens grow without nurturing by the hen. Of the farmers that use the mother hen, majority of them (47.5 %) highlighted that the chicks spend 3 weeks with the hen while least (1.7 %) reported of 6,7 and 11 weeks. The chicks were offered a range of feed types that include maize (30.3 % of the respondents) conventional broiler starter (19.7 %), growers' mash (15.2 %) and scavenging feed for themselves. 6.1% indicated that 5 chicks can survive to an age of sexual maturity while only 11.9 % and The majority of the farmers (85.9 %) indicated that highest chick mortality occur during the first week after hatching. The least number (1.3 %) indicated it occurs during the fourth week after hatching.

About 11 % of the farmers indicated that 6 and 7 chicks per hen survive up to the age of 2 months, 9.6 % indicated 5-7chicks while 1. 4% indicated 4-6 chicks and 23.9% said less than 4 chicks survive to an age of 2 months. About 24% of the respondents indicated that 8 and 12 chicks, respectively reach the sexual maturity stage. In order of importance, the causes of adult mortality were predation (42.4 %), diseases (18.2 %), and (7.8 %) it as the cause of mortality in Adult chickens

5.4 Management of indigenous chickens

Table 5.2: Time period for the cocks to reach sexual maturity

Time Period (months)	Proportion (%)
3	20.5
4	32.2
5	28.8
6	18.5



About 11 % of the farmers indicated that 8 and 12 chicks per hen survive up to the age of 2 months, 9.6 % indicated 6-7 chicks while 1.4 % indicated 4-5 chicks and 23.9 % said less than 4 chicks survive to an age of 2 months. About 24 % of the respondents indicated that 8 and 12 chicks, respectively reach the sexual maturity stage. In order of importance, the causes of adult mortality were predation (42.4 %), diseases (18.2 %), and (7.6 %) it as the cause of mortality in Adult chickens.

5.4 Management of Indigenous chickens

About 88 % chicken farmers indicated that they have separate houses for the chickens but 12 % did not have. Reasons given for challenges in constructing chicken housing were that there is no enough space (28.6%), while 71.4 % indicated that they had no money for construction of chicken housing. Of the farmers that indicated that they have specific housing for chickens, majority of them (62.4 %) said the houses are made of iron sheet roof and wood, while 37.6 % said they are made of blocks of mud. It was highlighted that chickens without housing sleep on top of houses/perch on trees or in the kitchen (40 %), in family dwellings (40 %) or in cages (20 %) at night. During the day the chickens are found under the trees (44.4 %), in cages (22.2 %) or roaming on the yard (22.2 %).

About 71 % respondents believed that it is advantageous to construct separate poultry houses for security reasons. Half of the community members (50 %) agreed that the advantage of separate houses is to prevent noise and enhance cleanliness in the house. The other reason highlighted was for preventing spreading of diseases (14.1 %). A significantly high number of the respondents (86.9 %) agreed that they practice cleaning of baskets, cages or chickens houses while 13.1 % do not clean. About 52 % of the respondents indicated that they clean houses for chicken 2-3 days in a week, 25 % indicated that they clean almost every day of the week and 12 % clean once per week. The other special care given to the chickens in Tshikota community include security (9.1 %), appropriate feeding (13.6 %) and veterinary care (77.3 %).

5.5 Feeding Resource and feeding strategies

Almost all the farmers (77.0 %) reported that they feed their chickens purposefully in confinement while 23 % do not feed chickens in confinement. More than half (64.4 %) of the farmers indicated that they practice supplementary feeding of chickens while 35.6% do not and the chickens solely rely on scavenging. For those that are provided with supplementary feeding, the main feedstuffs are maize (30.2 %), broiler starter (22.6 %) broiler finisher (9.4 %) and growers mash (9.4 %).

The drinking water that is given to the chickens is obtained from streams (23.4 %), fountains (23.4 %), and rivers (14.3 %). Mainly plastic containers (50 %) and cut car tires are used (31 %) to supply water to the chickens. The water is provided twice a day (32.5 %), every other day (31.3 %), or thrice a day (18.1 %), and in some instances two or three times per week (18.1 %). The containers are washed two or more than three times per day (32.5 %), every morning (31.3 %). Slightly more than half (59.3 %) of the respondents indicated that they do not experience serious poultry disease outbreak. However, of the 40.7 % who indicated disease outbreaks, the common disease mentioned was avian influenza (47.4 %). Other health problems mentioned were tick infestation (15.8 %), blindness (13.2 %) and lose of feathers (21.1 %). Symptoms noticed for sick chickens include sleeping always (60.7 %), and frequent oozing of mucus from the nasal cavity (10.7 %). A total of 73.2 % farmers indicated that they give sick birds treatment while 14.3 % immediately slaughter them for home consumption and a few 5.4 % call in the veterinarians. Others sell them all immediately (3.6 %) and few (1.8 %) kill them.

About 83 % famers indicated that they control free movement of the chickens while 15% do not. Reasons highlighted for controlling movement of chickens were to protect them from predators (93.1 %), avoid risk of contagious diseases (94.7 %), avoid mixing with village flock (77.3 %), and protecting chickens from destroying crops and/or vegetables (22.7 %). Almost every farmer (93.1 %) controls the free movement of chick at time of disease outbreak. Farmers (71.1 %) had the opinion that chickens should not mix with others when scavenging for feed. In case chickens die of diseases farmers (58.1 %) said sick birds should be thrown away while 15.1 % said they bury them.

5.6 Marketing of indigenous chickens

More than half of community members (59 %) indicated that the current market price of indigenous chickens is R50 (US\$6.13; 1 US\$ = R8.16) and the remaining 41 % indicated that it is R35 (US\$4.29; 1 US\$ = R8.16). Sixty percent of the respondents reported that the size of the chicken is the major determinant of market price for the chickens. Fifty-five percent of the respondents said there is no variation of market price for the chickens while 44.6 % reported of variation of chicken price. Of the 44.6 % respondents who indicated that there is variation, 65.4 % reported that the size of chickens causes variation in price. There was no relationship between age of the farmers and market price ($\chi^2=16.04$; $P>0.05$). Most members (88.6 %) sell their chickens to their neighbors while 10.1 % sell at the market place. Of the respondents who sell their chickens at the market place, 44.4 % indicated that it takes them 1 hour to get to the market point, 38.9% said it takes them 25 minutes while 5.6 % indicated more than 4 hours. Half (50.0 %) of the farmers that sell their chickens to the market use bumpy vehicles to transport the chickens to the market while 35.7 % carry the chickens in a basket.

5.7 Keeping of chickens before selling

About 32 % of the farmers keep the chickens for 5 months while 21 % keep them for about 6 months before sale and 6.7 % keep for 2 months. About 69 % indicated that their neighbours or village peoples are regular clients for their chickens while 19.5 % indicated selling to the consumers and the remaining 11.5 % sell their chickens to everyone with no specific attributes.

Majority of the respondents (82.9 %) reported that the owner of the chickens is responsible for the sale and 3.9 % indicated the head of the family is responsible. The respondents were asked to list the major problems of marketing live chickens in their locality in order of importance and the responses given were lack of transport (57.7 %), too much expensive (15.4 %), communication (12.8 %), too much feeding (9.0 %) and distance to the market place (5.1 %) (Figure 5.1).

5.8 Extension Contact and services

Most respondents (91.8 %) indicated that they have never discussed issues of indigenous chicken production with extension agents while few (8.2 %) indicated that they did. Of the few who said they consult extension officers, 50, 25 and 25 % of them reported that they do so 4 days in a month, 3 and 2 days, respectively. Of the ones who have never consulted with extension officers the reasons highlighted include they have no idea about the extension in poultry (54.7 %), could not easily reach them (39.1 %) and there is no need to contact them (3.1 %). When asked if they have ever heard about improved poultry production, 68.3 % indicated that they know about them while 31.8 % indicated that they do not know such. Also, there was a relationship between education of farmers and extension services ($\chi^2 = 13.03$, $P < 0.05$).

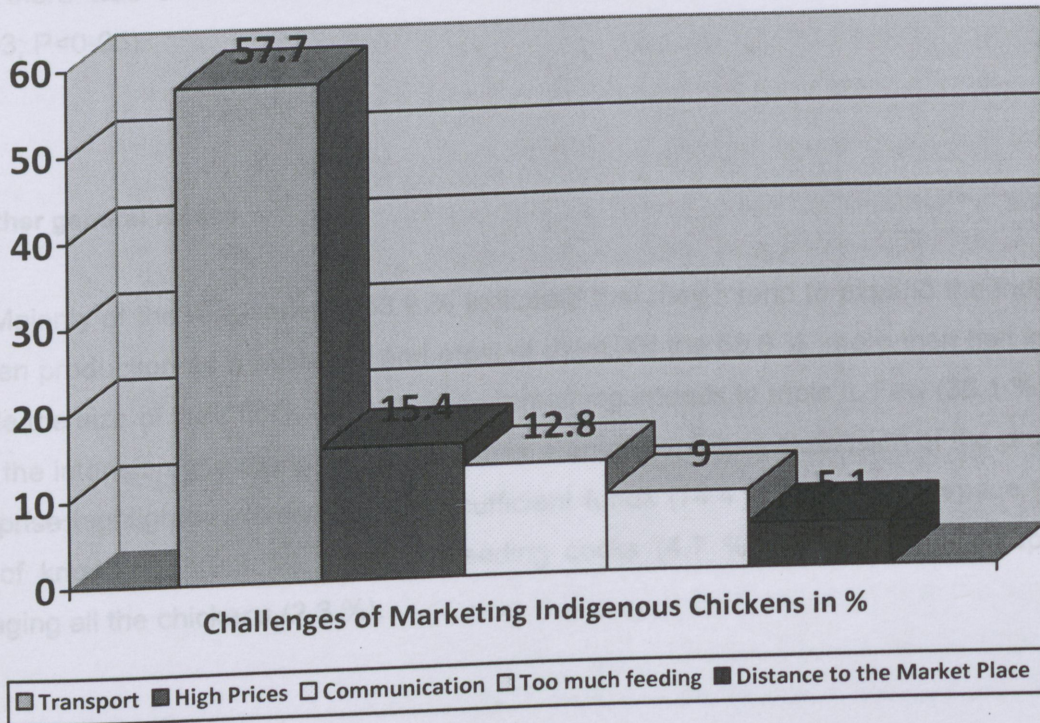


Figure 5.1: Major challenges of marketing live chickens facing Tshikota farmers

The suggested contributions that the government should embark on to improve poultry keeping in rural areas were funding the enterprise (48.1 %), provide provision of feed (27.2 %), facilitate workshops for the individuals farming with indigenous chickens (19.5 %) and are no institutions that are providing them with credit services. Almost all 96.1 % respondents indicated that there are no poultry developments or research projects in the area. Fifty-six percent reported that they take half a day on poultry keeping, 25.8 % spend quarter of a day while 17.9 % said they always check their chickens.

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5.9 Other general issues

The Majority of the respondents 63.9 % indicated that they intend to expand the indigenous chicken production as a business and most of them. Of the 63.9 %, more than half intend to double the size of their flock size while the remaining intends to triple it. Few (36.1 %) do not have the intention of expanding the business. Barriers to future expansion of the production enterprise highlighted were not having sufficient funds (74.4 %) insufficient space (9.3 %), lack of knowledge (9.3 %), lack of breeding cocks (4.7 %) and might be incapable of managing all the chickens (2.3 %).

The suggested contributions that the government should embark on to improve poultry keeping in rural areas were funding the enterprise (48.1 %), indicate provision of feed (27.2 %), facilitate workshops for the individuals farming with indigenous chickens (19.8 %) and introducing developmental projects (4.9 %). All the respondents (100 %) indicated that there are no institutions that are providing them with credit services. Almost all 96.1 % respondents indicated that there are no poultry developments or research projects in the area. Fifty-six percent reported that they take half a day on poultry keeping, 25.6 % spend quarter of a day while 17.9 % said they always check their chickens.



About 85 % of the respondents indicated that they do not have access to extension officers. Of the few (15 %) who have access to extension services it is mainly for poultry production (66.7 %) and dairy production (33.3 %). The services are in the form of advice only (38.5 %), provision of improved breeds of chickens (30.8 %), complete national poultry package (15.4 %) and provision of feed and veterinary services (7.7 %).

US\$ = R8.16) (22.5 %).

5.10 Annual Income from Indigenous Chicken Farming

As depicted in Figure 5.2, 31.6 % of the respondents have indicated that they make an estimated annual income of R3500.00 (US\$429.45; 1 US\$ = R8.16) from chicken sales, 26.6 % make about R1000.00 (US\$122.70; 1 US\$ = R8.16) a year and 15.2 % make between R2500.00 (US\$306.75; 1 US\$ = R8.16) and R3000.00 (US\$368.10; 1 US\$ = R8.16) per annum from the sale of their chickens. The other 26.6 % highlighted that they do not keep records of their chicken sales and therefore could not provide any figures. More than half (59 %) of the respondents have indicated that they use the income made to pay for their children's school fees, 30.7 % use the income to purchase agricultural inputs, 7.7 % use the money for household expenses while 2.6 % used their income for medical expenses.

5.11 Contribution of indigenous chicken to rural livelihoods

All the respondents (100%) agreed that rural livelihood is the development of the rural areas in terms of infrastructure such as roads, clinics and schools. As illustrated in the current study, at least every one owns chickens with slightly less than half of the respondents (40.4 %) owning 16 chickens and above and the least number of chickens owned were 11-15 (15.7 %). The outlined contributions of chickens to household livelihoods were income generation (59.8%), job creation (15.2 %), and meat for home consumption (15 %) and provision of eggs (10 %) (Figure 5.3). Contribution of chickens to households needs had no relationship with the number of chickens owned ($\chi^2 = 16.04$; $P > 0.05$)

For the past year above 16-20 chicken have been sold (75 %) followed by 11-15 chickens (18.2 %), 6-10 (4.5) and 1-5 (2.3 %). The indicated cost of an egg ranged from R1 (S\$0.12) (30.7 %) to R5.00(S\$0.6; 1 US\$ = R8.16) (4.5 %). Most eggs are sold at R2.00(S\$0.24; 1



US\$ = R8.16) (38.6 %). In the past years households have been consuming 6-10 chickens (74.7 %). These were consumed at funerals (32.5 %), parties (31.3 %), wedding ceremonies (16.9 %) and festive seasons (2.4 %) Most (80.7 %) consumed 16-20 and above eggs in the past year. The money that was spent on feed for chickens was R50.00(S\$6; 1 US\$ = R8.16) and above (42.9 %) R40.00-R45.00 (S\$5.4; 1 US\$ = R8.16) (34.5 %) and R35.00(S\$4.2; 1 US\$ = R8.16) (22.6 %).

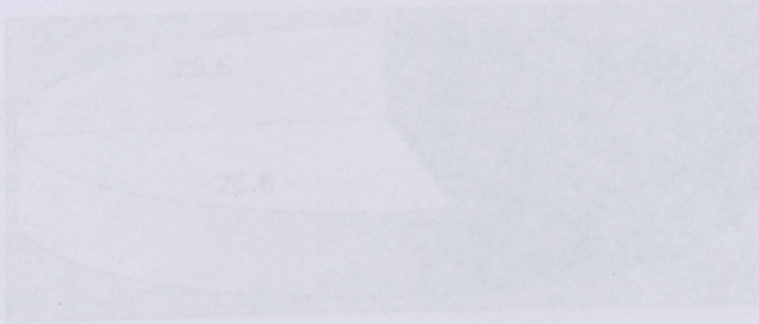


Figure 5.2: The annual income from the sale of indigenous chickens in Tshikota community

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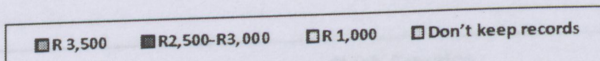
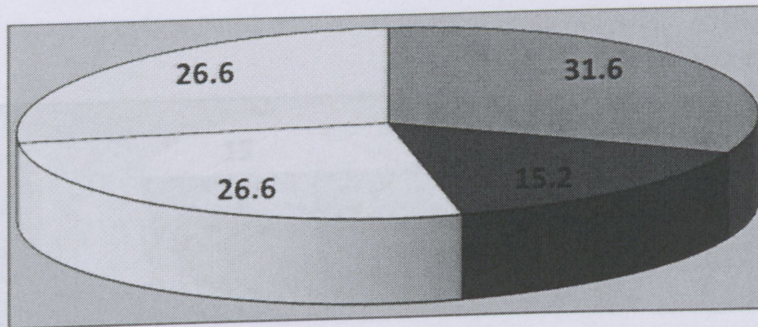


Figure 5.2: The annual income from the sale of indigenous chickens in Tshikota community

Almost half of the respondents (51.8 %) spent R100.00 (US\$ 11.8) on medicine while half of the respondents (50.0 %) spent R200.00-R300.00 (US\$ 23.6 - 35.4) on security about (29.4 %) indicated that R100.00 (US\$ 11.8) was used to purchase chickens while (18.8 %) indicated R350.00 (US\$ 41.2). About (24.1 %) of the respondents use money gained from selling chickens and eggs to pay school fees for kids and (11.5 %) use money for transport, (10.3 %) use the money for paying labor and (10.3%) use it to buy groceries.

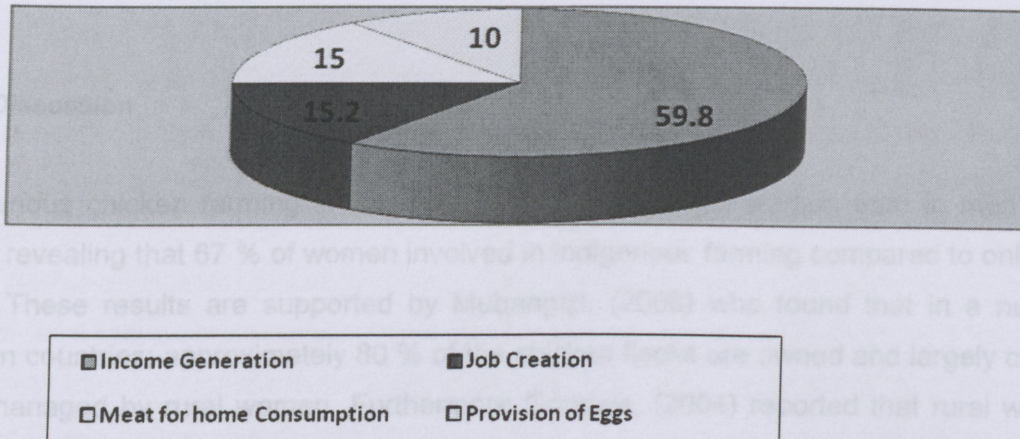


Figure 5.3: Contribution of indigenous chickens to rural livelihoods

Migration of men to cities in search for employment opportunities is supported by Barus and Yoshimura, (2005) who found that high levels of migration of husbands/fathers who are often involved in jobs in the cities far away from home have their lives being involved in the lives of their families, resulting in a large number of female-headed households running the family affairs. This study reveals that indigenous chicken production plays a pivotal role in income generation, household nutrition and food security, with special benefits to women and children who significantly participate in village chicken production and marketing (Moges et al., 2015). It was also interesting to note that more women in Tshikota are involved in indigenous chicken trading than their male counterparts.

Indigenous chicken farming in Tshikota is dominated by low or uneducated with minimal level of education with only (9 %) of the farmers having secondary education and majority of the farmers (42.7 %) having secondary education. The majority (57.60 years) were

Almost half of the respondents (51.8 %) spent R50.00- R55.00(S\$6.6; 1 US\$ = R8.16) on medicine while half of the respondents (50.6 %) spent R200.00-R300.00(S\$36; 1 US\$ = R8.16) on security about (29.4 %) indicated that R100.00(S\$12; 1 US\$ = R8.16) was used to purchase chickens while (18.8 %) indicated R350. 00 (S\$42; 1 US\$ = R8.16). About (24.1 %) of the respondents use money gained from selling chickens and eggs to pay school fees for kids and (11.5 %) use money for transport, (10.3 %) use the money for paying labor and (10.3%) use it to buy groceries.

5.12 Discussion

Indigenous chicken farming in Tshikota is popular amongst women than in men with the study revealing that 67 % of women involved in indigenous farming compared to only 33% of men. These results are supported by Mubangizi, (2008) who found that in a number of African countries; approximately 80 % of the chicken flocks are owned and largely controlled and managed by rural women. Furthermore Gondwe, (2004) reported that rural women in North-West Ethiopia are more responsible for chicken rearing in both male and female headed households, while men are responsible for crop cultivation and other off-farm activities. This could be also attributed to underdevelopment and limited job opportunities in the area of study. This subsequently led to migration of most men to places like Gauteng and Rustenburg mines to seek for employment, leaving their wives behind to run the family affairs, including farming with indigenous chickens.

Migration of men to cities in search for employment opportunities is supported by Barua and Yoshimura, (2005) who found that high levels of migration of husbands/fathers who are often involved in jobs in the cities far away from home may keep them from being involved in the lives of their families, resulting in a large number of *de facto* or *de jure* female-headed households running the family affairs. This is the reason why indigenous chicken production plays a pivotal role in income generation, household nutrition and food security, with special benefits to women and children, who significantly contribute to village chicken production and marketing (Moges et al., 2010). It was not surprising therefore that more women in Tshikota are involved in indigenous chicken farming than their male counterparts.

Indigenous chicken farming in Tshikota is dominantly run by individuals with minimal level of education with only (9 %) of the farmers having attained tertiary education and majority of the farmers (42.7 %) having secondary education. In addition the elderly (51-60 years) were

in large numbers (473 %) followed by 41-50 years olds (20 %) while those below 20 years were the least (2.2 %).

Poor extension services and inadequate credit facilities were highlighted in this study. Extension services play a significant role in determining the success of indigenous chicken farming amongst the rural folks. According to (Souflas, 2009), the major constraints to village chicken production included lack of extension and veterinary services. However the indigenous chicken farmers found in Tshikota do not view consulting with extension officers as the most important aspect of their business, as most (91.8 %) of the respondents never consulted extension officers for advice and technical support. Only (8.2 %) indicated that they do consult them to discuss issues of indigenous chicken production. The farmers' inability or reluctance to seek extension services from the Extension Services could be attributed to several factors. One such factor could be seen in Ranwedzi (2002) who in a study on the evaluation of family poultry production systems in the Northern Region found that farmers rely on their neighbors for advice and information. These farmers would rather seek help from a neighbor than to go to an extension officer on what to do when there are strange things happening on their flocks.

Another factor that could be acting as a hindrance for farmers in Tshikota to access extension services could be their low level of education, resulting in a lack of necessary knowledge crucial to the success of their farming ventures. In Tshikota, this lack of knowledge has left (54.7 %) of the respondents with no idea about the extension in poultry while (39.1 %) could not easily reach them and others (3.1 %) indicating that there is no need to contact them. This has resulted in these farmers putting their faith on indigenous methods that were used by their forefathers and shun modern ways of farming. This is supported by Mapiye and Sibanda (2005) who found that because of farmers' lack of knowledge, in times of disease occurrence smallholder farmers either do nothing, use ethno-veterinary medicine or medicine originally intended for humans. Most farmers' preference of using traditional medicine is attributed to factors such as its low cost, local availability, easiness of application and that it does not require modern technologies such as refrigeration (Mapiye et al., 2008).

Farmers consider proper housing for indigenous chickens to be the most important aspect in their business with (88 %) indicating that they have separate houses. These findings are in agreement with Gondwe, (2004) who conducted a study in Northern Ethiopia and found that a significant size of the rural households had built separate sheds for their chickens.

Farmers appreciate the role that proper housing makes management easier; 41-50 years olds (20 %) assists them to successfully rear their chickens to market age in the shortest possible time as well as protecting their chickens from predation and natural elements. This study has revealed three benefits of constructing a proper housing namely; for security reasons, to prevent noise and enhance cleanliness in the house and preventing spreading of diseases. Provision of accommodation and hence overnight security indicates the importance that farmers attach to their flocks, because farmers who kept chickens for economic enterprise always ensure that the chickens have proper accommodation (Laker, 2006). This is to ensure that the community members have always their chickens at their homes and that they continue contributing significantly to their day to day household needs.

However, while the majority of the farmers acknowledged the role of proper housing, (66 %) of the farmers indicated that they kept their chickens in 'poor' housing Svedberg, (2003), who also observed a high proportion of households keeping their indigenous chickens in poor fowl run at night. Farmers' inability to construct proper housing could be attributed to lack of credit facilities where they can access funding, with (71.4 %) of those who did not have separate houses indicating that they had no money for construction of chicken housing.

Availability of credit services is of paramount importance in indigenous farming, considering that most indigenous chicken farmers are rural villagers with no financial muscle to purchase things like supplementary feeds, vaccinations and medicines. In the current study, all the respondents (100 %) indicated that there are no institutions that are providing them with credit services. This has resulted in majority of farmers (62.4 %) resorting to the use of iron sheet roof and wood, while 37.6% made use of blocks of mud to construct chicken houses. These findings are similar to those of Bogalle (2010) who in the study of (Gomma and Skoufias, 2009). Wereda in Ethiopia found that farmers resorted to using corrugated iron roof and thatch (grass) roof as poultry houses construction materials. In some instances baskets and cartons are placed on the bare floor of the family house while Bamboo sticks are occasionally used for construction of perches within the family houses. Mogesse et al. (2007) argued that the socio-economic status of the farmers, lack of farming infrastructure and access to farming support services are great hindrance to adopt and finance the cost of the new technologies, including improved breeds.

Indigenous chicken farmers who are unable to build separate houses have resorted to other methods of accommodation with the most common ones being to let the chickens sleep on top of houses/perch on trees, in the kitchen, family dwellings and in cages. In this study,

majority (40 %) of those without proper houses let their chickens sleep on top of the roofs and trees while another (40 %) put them in family dwellings. These findings are supported by those of Spradbrow (1993) who found that in many areas no specific housing is provided and the chickens roost in trees at night and shelter below elevated human dwellings. In some areas primitive poultry houses are built from simple, locally available materials while in other areas the chickens share part of human habitation. These studies were further corroborated by Mtileni et al. (2009) and Bogalle (2010) where most farmers allow their birds to perch in the kitchen, cattle yard and on trees during night time, respectively.

Diseases have also been seen as a major challenge facing indigenous chicken farmers. This is in line with several researchers who also identified several diseases such as New Castle, Influenza to be major cause of high mortality rate amongst indigenous chickens (Mogesse et al., 2007; Bogalle, 2010). As in this study, avian Influenza has been found to have a remarkably high mortality rate in a variety of domestic bird species and caused drastic losses to poultry farming throughout the world (Duangjinda, Choprakarn, Suwanlee, Amnueysit and Thieme, 2009). Other health problems mentioned were tick infestation, blindness and lose of feathers. A total of 04 the farmers indicated that they give sick birds treatment while few of them immediately slaughter the chickens for home consumption or call in the veterinarians. The challenge facing these farmers, however, is lack of knowledge in disease management, resulting in using traditional methods which are not always effective, resulting in high mortality rate (Mwale et al., 2009). Smallholder farmers' preference of using traditional medicine has been attributed to factors such as its low cost, local availability, easiness of application and it does not require modern technologies such as refrigeration (Mapiye et al., 2008; Mwale and Masika, 2009).

SUMMARY

According to Mubangizi, (2008) approximately 80 % of the chicken flocks are owned and largely controlled and managed by rural women. This is the reason why indigenous chicken production plays a pivotal role in income generation, household nutrition and food security, with special benefits to women and children, who significantly contribute to village chicken production and marketing (Moges et al., 2010). to (Skoufias, 2009), the major constraints to village chicken production included lack of extension and veterinary services. However the indigenous chicken farmers found in Tshikota do not view consulting with extension officers as the most important aspect of their business, as most (91.8 %) of the respondents never consulted extension officers for advice and technical support.

Most farmers' preference of using traditional medicine is attributed to factors such as its low cost, local availability, easiness of application and that it does not require modern technologies such as refrigeration (Mapiye et al., 2008). Farmers consider proper housing for indigenous chickens to be the most important aspect in their business with (88 %) indicating that they have separate houses. The challenge facing these farmers, however, is lack of knowledge in disease management, resulting in using traditional methods which are not always effective and these results in high mortality rate (Mwale et al., 2009)

6.2 General Discussions

Indigenous chickens farming have been part of rural people's lives for ages, playing a significant role in meeting their nutritional, cultural, social and to certain extent their financial needs. Their direct impact on rural folks continues to be seen and felt even in the 21st century, with most rural families still heavily reliant on the chickens to meet their basic needs. While these chickens can rarely be seen as the sole means of livelihood for the family, it is one of a number of integrated farming activities contributing to the overall well-being of the households. They, however, provide employment and income generating opportunity and is a priority animal for holidays and religious sacrifices (Mwale et al., 2009). The indigenous chicken farmers of Tshikoto are no exception as the results revealed that farmers within this community rely on their chickens for income generation, self-consumption, meat consumption and provision of eggs. Those who make income from the sale of chickens usually use the money to meet basic family needs such as paying school school fees, buy food and other necessities.

However, while the chickens have a potential to play a pivotal role in improving the livelihoods of the farmers in Tshikoto area, the empirical evidence from the study revealed

CHAPTER 6: GENERAL DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

6.1 Introduction

The aim of the study, as stated in Chapter One, was to examine the contribution of indigenous chickens in improving the livelihoods of the Tshikota community in Makhado Municipality. Their objectives were to determine the effectiveness of indigenous poultry farming as a vehicle for poverty alleviation in rural areas; to investigate the marketing channels and key players in the poultry marketing system for rural households in Tshikota community; and to identify the major constraints and possible opportunities for using indigenous chickens as a vehicle for eradicating poverty in Tshikota community. This chapter was therefore aimed at offering general discussions about the study and its findings as well as recommendations based of the major issues revealed by the study.

6.2 General Discussions

Indigenous chickens farming have been part of rural people's lives for ages, playing a significant role in meeting their nutritional, cultural, social and to certain extent their financial needs. Their direct impact on rural folks continue to be seen and felt even in the 21st century, with most rural families still heavily reliant on the chickens to meet their basic needs. While these chickens can rarely be seen as the sole means of livelihood for the family, it is one of a number of integrated farming activities contributing to the overall well-being of the households. They, however, provide employment and income generating opportunity and is a priority animal for hollidays and religious sacrifices (Pelletier et al., 2008). The indigenous chicken farmers of Tshikota are no exception with the results revealing that farmers within this community rely on their chickens for income generation, job creation, meat consumption and provision of eggs. Those who make income from the sale of chickens usually use the money to meet basic family needs such as paying children school fees, buy food and other necessities.

However, while the chickens have a potential to play a pivotal role in improving the livelihoods of the farmers in Tshikota area, the empirical evidence from the study revealed

that more often than not these farmers encounter major challenges that threaten the very source of their income and the impact that chickens might have on the livelihoods of the farmers. The fact that most farmers have poorly constructed chicken houses while others do not have houses at all, poor disease management methods and lack of security have been highlighted as the major hindrances to the success of indigenous chicken farming. This is because these problems normally result in high mortality rate, thereby having a negative impact on the chickens' contribution to the livelihoods of the farmers. It is, therefore, not surprising that the results revealed that chickens have minimal impact in terms of monetary profits. The findings have revealed that the highest annual income was R3500.00 (US\$428.92; 1 US\$ = R8.16) that farmers made, which works out to R292 per month (US\$35.78; 1 US\$ = R8.16). This means that those that are selling their chicken at R50.00 (US\$6.13; 1 US\$ = R8.16) sell an average of 5.84 chickens per month and those that sell at R35.00 (US\$4.29; 1 US\$ = R8.16) sell an average of 8.34 chickens per month. It is, therefore, not surprising that most farmers are finding it difficult to expand their business without extra financial backing. It is paramount therefore that all relevant stakeholders join hands and devise means to be implemented to ensure that indigenous chickens farming move from subsistence farming venture to commercial farming.

6.3 Overall Conclusion

Indigenous chickens are normally introduced with the main aim of improving the livelihoods of the farmers. This is achieved by generating income for the projects in a sustainable manner. Their production enterprise is judged by the quantity and quality of products sold and the amount of the profit gained. It is advisable to promote demand for indigenous chicken in big supermarkets and hotels, again organizing chicken farmers to access markets which offer better prices. Accessing basic business management skills to chicken farmers and traders. However, the study has revealed some interesting facts that municipalities and funding departments perhaps need to consider ensuring that these indigenous chicken farming projects reach their full potential. The study showed that while indigenous chickens have the potential to improve the livelihoods, farmers are constantly faced with challenges that hinder their businesses from prospering to levels where they will be able to generate enough income to sustain them. Therefore it is important to train farmers on common chicken diseases and how to prevent and treat them.

6.4 Recommendations

After studying the results of this study, the researcher wishes to suggest that the following recommendations be implemented to enhance the potential of indigenous chicken farming as a poverty alleviation vehicle:

- a) Community members in rural areas can safely use indigenous chickens for income generation and other covering household needs;
- b) The Department of Agriculture (Makhado Municipality) should extend their extension services that the extension officers (EOs) offer to the farmers. This could be achieved by increasing the site visits that EOs have to farmers' establishments. Frequent site visits will accomplish a lot of things, including amongst others; educating farmers on feeding and disease management and marketing strategies.
- c) The Department could make their services more accessible to beneficiaries by holding seminars and workshops where they could explain their services and offer advices to farmers in languages that they can understand;
- d) The government, particularly the Department of Agriculture should help bring the indigenous poultry business into the mainstream poultry farming system by providing credit facilities specifically customized to suit poor and emerging farmers. Credit facilities will allow them to expand their farming ventures, which will eventually help them move from subsistence farming to commercial farming;
- e) The researcher also believes that collaborations between Agricultural Colleges, Schools of Agriculture of the local universities, farmers and the Department of Agriculture which are aimed at rural development and poverty alleviations should be applied. Such collaborations could be helpful on issues such as skills transfer, financial assistance, and marketing strategies;
- f) Farmers should consider establishing an indigenous chicken farmer organization which oversee amongst others; regulation of chicken prices, sourcing of new markets for their chickens and liaising with the local office of the Department of Agriculture.
- g) The Department of Agriculture should strongly consider linking together farmers doing the same thing (i.e. poultry projects) from different areas to learn from each other's experiences and promote partnership where projects can come together and buy feeds in bulk, which would be cheaper;
- h) One challenge facing farmers as revealed by results is lack of proper chicken houses. The researcher therefore believes that the Department of Agriculture could help by

roping in Komati land Forests, a subsidiary of the Department of Public Enterprises to educate the farmers on how they can use timber to construct proper chicken houses.

Future research work emanating from this work is outlined below:

- a) Other studies are therefore needed to explore the relationship between marketing methods and business management practices in the sustainability of indigenous chicken farming projects.
- b) Further research should be conducted to assess the viability of establishing cooperatives in Tshikota area to bring the budding indigenous chicken farmers together to operate under a formally registered business. Such a study would enable the generalization of the findings and designing more formidable poverty alleviation indigenous chicken projects with the potential to improve the livelihoods of the beneficiaries;

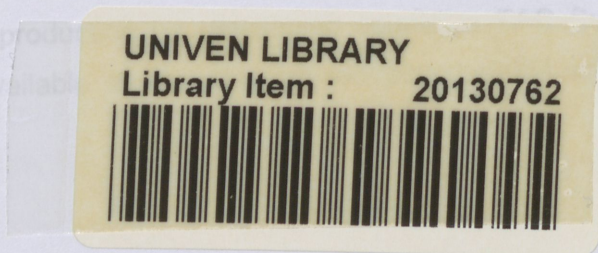
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APPENDICES

Appendix 1: Semi-structured Interview Guide

University of Venda

Centre for rural Development and Poverty Alleviation (CRDPA)

Private Bag X5050

Thohoyandou, 0950

Interview Guide for key Informants

Research Topic: Contribution of Indigenous Chickens to Improvement of Livelihoods of the Farmers in Vhembe District

Strictly confidential

This information is strictly confidential. The name and any other details of the respondents will not be used for any purpose except for this study.

Name of the respondent:

Extension officer

Gender:

Research Questions

1. What do you regard as improved livelihoods?
2. What is it that indigenous chickens contribute to each element of livelihoods?
3. What are the major contributors to improve livelihood?
4. What are the challenges faced, when farming with chickens?
5. For each challenge mentioned what could be the possible solution?

Appendix 2: Questionnaire

1. BIOGRAPHICAL DATA and Historical background

1.1. Gender Male Female

1.2. Age

1.3. Highest education obtained

- a. Uneducated
b. Primary school
c. Secondary school
d. Tertiary

1.4. How long has poultry been kept in the household? -----

1.5. What Chicken types do you raise? -----

1.6. How did your project come about?

- a. Purchased it
b. Inherited it
c. Government-funded poverty alleviation initiative
d. Other, specify-----

2. Production

2.1. Do you have your own breeding cock? Yes No

2.2. If your answer to question 2 is no, how do you mate (breed) your laying hens?

2.3. If your answer to question 2 is yes:

2.4. Indicate the age of sexual maturity for the use of cock for breeding purpose?

2.5. How long do you use the cock for breeding purpose? -----

2.6. How many layers do you assign /breeding cock? -----

2.7. How many times do you incubate eggs per year? -----

2.8. What do you use as egg setting material? -----

a) clay pot & straw bedding

b) clay pot only/without bedding

c) Teff straw

d) wheat straw

e) other (Specify) _____

2.9. Is there seasonal variability on hatchability? Yes No

2.10. If yes, at which season did you have the worst (lowest) hatchability? -----

2.11. Do you use the mother hen in raising the chicks? Yes No

2.12. If yes how long the hen spends weaning the chicks (in weeks)? _____

2.13. What do you feed them? -----

2.14. 38. When the highest chick mortality does occur after hatching? During

a) The 1st week	
b) The 2nd week	
c) The 3rd week	
d) The 4th week	
e) Other, specify	

2.15. How many chicks survive to an age of 2 months? -----

2.16. State the cause of the highest chick mortality in order of importance

(1st) -----

(2nd) -----

(3rd) -----

(4th) -----

2.17. How many chicks survive to an age of sexual maturity (5 months)? -----

2.18. State the cause of the highest adult bird mortality in order of importance

3. MANAGEMENT

3.1. Do you have separate poultry house (other than family dwellings)? Yes No

3.2. If your answer to question 2 is no, what is a problem in the construction of separate Poultry house (Prioritize theme)

1st -----

2nd -----

3rd -----

4th -----

3.3. If your answer to question 2 is no, where does your birds stay at night? Tick answer(s) that is applicable to your situation

(a) In the kitchen	
(b) Family dwellings	
(c) Perch on trees	
(d) Under basket	
(e) In cages	
(f) In the house purposely made for chicken	
(g) Others specify -	

3.4. If your answer to question 2 is no, where does your birds stay during day times?

3.5. Do you believe it is advantageous to construct separate poultry house?
Yes No

3.6. If your answer to question 6 is yes state the advantages of separate poultry house.

3.7. If they rest in basket or cage, or in a separate house, do you practice cleaning of poultry house? Yes----- No-----

3.8. If your answer to question 2.7 is yes, how often do you clean poultry house (How many days in a week)-----

3.9. If your answer for question number 2.3 is **choice f**, the house is made from

1) Mud of blocks	
2) iron sheet roof & wood	
3) other-----	

3.10. Specify any special care given/associated with birds in the area-----

4. Feed Resources and Feeding Strategy

4.1. Do you practice purposeful feeding of your chicken in confinement? Yes-----No-----

4.2. Do you practice supplementary feeding of your chicken? Yes-----No-----

4.3. If yes, indicate the ingredients you use for poultry feeding -----

4.4. If your answer to question is no, how do you feed your birds?

4.5. If you give water for the chickens, where do you get the water from?

(a) Rain water

(b) River

(c) Tap water

(d) .Other, specify-----

4.6. .If you give water for the chickens, what type of container do you use to supply water? --

4.7. If you give water for the chickens, how frequent do you wash the container?(per week) -

4.8. If you give water for your chickens, how frequent do you provide?

(a) Every other day

(b) Once/day

C) Twice/day

(d)Other, specify-----

5. Health and disease control

5.1. Do you experience serious disease outbreaks? Yes .No

5.2. If yes, describe the common diseases you have experienced in your flock-----

5.3. How do you recognize sick birds? -----

5.4. What do you do when birds are sick? (Tick the correct answer)

(a) Treat them myself	
(b) Call in veterinarian	
(c) Call in development agents	
(d) Cull/kill them all immediately	
(e) Slaughter them all immediately for home	
Consumption	
(f) Sell them all immediately	
(g) Others. Specify -----	

5.5. Do you control the free movement of chickens all the times?

Yes No

5.6. If yes, would you mention the reason?

a. To protect from predators attack	
b. To avoid risk of contagious diseases	
c. To protect from mixing with the village flock	
d. To protect birds from picking and destroying crops/vegetables	

5.7. Do you control the free movement of chickens at a time of disease outbreak? Yes No

5.8. Do your chickens scavenge mixed with that of your neighbors? Yes No

5.9. What do you do with dead birds? -----

5.10. Describe the common diseases you have experienced in your flock

6. Marketing

6.1. What is the current market price of chicken? -----

6.2. Which of the followings is the major determinant of market price of your chicken?

Size of the chicken	Type of the chicken	Other competitors
Others: Specify		

- 6.3. Is there variation of market price of chickens in your locality? Yes No
 6.4. If your answer is yes please write down the causes of variations in market price of eggs in terms of importance.

1st -----

2nd-----

3rd -----

4th -----

- 6.5. Where do you sale your chicken? -----
 6.6. If you sale your chicken at local market how long do you transport to reach the market point? -----
 6.7. How do you transport the chicken? -----
 6.8. How long do you keep your chickens before sale? -----
 6.9. Who is your regular client (buyer) of chickens? Tick the answer(s) applicable to your business.

i.	Village collectors/neighbors	
ii.	ii. Collector in the market	
iii.	iii. Sell to consumers	
iv.	Others	

- 6.10. Who is responsible for the sale of chickens in your business?

1st -----

2nd -----

3rd -----

- 6.11. What is the current market price of adult male bird? -----
 6.12. What is the current market price of pullets? -----
 6.13. What is the current market price of laying hen? -----
 6.14. Is there variation of market price of live bird in your locality? Yes---- No-----
 6.15. If your answer for question 14 is yes, which of the followings is the major determinant of market price of live chickens in your locality? (Use 1st 2nd 3rd)

i. Feather color _____ (which color is the most preferable)-----

ii. Comb type _____ (which type is the most preferable)-----

iii. Shank color _____ (which color is the most preferable)-----

iv. Body weight _____ (which weight is the most preferable)-----

v. Sex _____ (which sex is the most preferable)-----

- 6.16. Write down the major problems of live bird marketing in your locality in terms of importance

1st -----

2nd -----
 3rd -----
 4th -----

6.17. What are the problems relating to live poultry marketing in your experience?

i. Unstable bird price	
ii. Poor sales (demand seasonality)	
iii. Lack of market place	
iv. Poor infrastructure (road, market)	
v. Lack of information	
vi. Others, specify-----	

7. Extension contact and services

7.1. Have you ever discussed your poultry production & related problems with extension agents? 1. Yes----- 2.No-----

7.2. If yes how frequently do you contact the agent (days in a month) -----

7.3. If no, state the reasons for not contacting the extension agent in terms of importance

(a) Have no idea about the extension in poultry	
(b) Could not easily reach them	
(c) There is no need to contact the agent	
(d) Other, specify-----	

7.4. Have you ever heard about improved poultry production practices?

1. Yes

2. No

7.5. If yes, what is your major source of information on improved poultry production practices? Tick the ones applicable to your business.

(a) Extension agents	
(b) Relatives	
(c) Other farmers	
(d) Newspaper	
(e) Market	
(f) Radio	
(g) Neighbors	
(h) Television	

(i) Co-operative leader J)

Other specify

8. Other general issues

8.1. Do you intend to expand poultry production as a business? Yes No

8.2. If yes, indicate flock size of your interest -----

8.3. What are your barriers to future expansion of poultry production?

1st -----

2nd -----

3rd -----

4th -----

5th -----

6th -----

8.4. What do you think the government should do to improve poultry keeping, Particularly in rural areas? -----

8.5. Are there any institutions giving credit service to you? Yes No

8.6. If yes, what is the name of the institution? -----

8.7. If yes, what is the objective of the institution?(for what purpose are giving?)

a)-----

b) -----

c) -----

d) -----

8.8. Are there any development/ research projects working in poultry in the area?

Yes----- No-----

8.9. If yes Name of the Institution Types of service support

8.10. How much time do you spend each day on poultry keeping?

(a) Half of a day

(b) quarter of a day

(c) others specify -----

8.11. Do you have any access to extension services? Yes No

8.12. If yes, in what aspects?

(a)Crop production

(b) Dairy production

(c) Sheep/goat production

(d) Poultry production

(e) Others, specify---

8.13. If you are receiving extension services in what form?

8.13.1. Advice only	
8.13.2. Provision of improved breeds of chickens	
8.13.3. Provision of feed and veterinary service	
8.13.4. Complete national poultry package	
8.13.5. Others, specify	

8.14. What is your estimated annual income from the sale of poultry and poultry products? -----

8.15. For what purpose or how do you use the money from sell of poultry and poultry products

(a) Purchase of agricultural inputs	
(b) Payment of school fee for children	
(c) To cover household expense	
(d) To cover medical expense	
(e) Others, specify	

9. Contribution of Indigenous chickens to rural livelihoods.

9.1 What do you understand by the term rural livelihoods?.....

.....

.....

.....

9.2 Who owns chickens at home?

- Mother
- father
- granny or
- child

9.3 How do chickens contribute to livelihoods).....

- ii).....
- iii).....

iv).....

v).....

9.4 What is the cost of a chicken?

1. R35.00 and below 2. R40.00 3. R50.00

9.5 What is the cost of an egg?

1. R1.00 2. R2.00 3. R3.00 4. R4.00 5. R5.00

9.6 Chickens are consumed for what purpose?

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

9.7 How much money is spent on feed? Below

1. R35.00 2. R40-45.00 3. R50.00

9.8 What is the money gained used for?

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

THANK YOU FOR YOUR COOPERATION