VAN HALL LARENSTEIN
PART OF WAGENINGEN UR

Women in Local Chicken Production:

The case of marketing and disease control in chicken production by rural women in Mvomero District, Morogoro, Tanzania

A research project submitted to
Larenstein University of Professional Education
in Partial fulfillment of the Requirements for
the degree of Master of Development
specialization in Training, Rural Extension and Transformation

By
Enesa Raphael Mlay
September 2010

Wageningen
The Netherlands

PERMISSION TO USE

In presenting this research in partial fulfillment of the requirement for a Postgraduate degree, I agree that the library of this University may make it freely available for inspection. I further agree that permission for copying of this research in any manner, in whole or part for scholarly purposes may be granted by Larenstein Director of Research. It is understood that any copying or publication or use of this research project or parts thereof for financial gain shall not be allowed without my written permission. It is also understood that due recognition shall be given to me and to the University in any scholarly use which may be made of any material in my research project.

Request for permission to copy or to make other use of material in this research project in whole or part should be addressed to:

Director of Research
Larenstein of Professional Education
P.O Box 9001
6880 GB Velp
The Netherlands
Fax: +31263615287

DEDICATION

First and foremost, I dedicate this work to My Almighty God who gave me wisdom, good health, understanding and endurance to undertake this work successfully. Secondly to my Husband the late Prof. Paul. S Mlay and our children Joseph, Cynthia and Jesse, my beloved parents Alinune and Raphael Nkinda.

ACKNOWLEDGMENT

I wish to express my thanks to Dutch Government for granting me a fellowship to pursue this Master's course in Larenstein University through Nuffic Fellowship. I believe this will help me to contribute to improve rural household production in Tanzania.

I would like to take this opportunity to express my thanks to the course Manager of professional educational master in the Larenstein Mr. Robert Bars and the training, rural extension and transformation course coordinator Loes Witteveen for their support through the course. Many thanks to all Mod Student and Treat student, for their support and encouragement during all my studies.

My sincere thanks go to Mr. Adnan Koucher who accepted to be my supervisor in this research project. I am grateful for the guidance and encouragement throughout the whole process of my research. I am also thankful to Mr. Marko V, my former supervisor, for technical support in the initial stages of my research.

I am deeply grateful to Sokoine University of Agriculture in Tanzania for granting me a study leave to undertake this study. My sincere gratitude to the Department of Veterinary Medicine and Public health and the Department of Veterinary Physiology, Biochemistry, Pharmacology and Toxicology for the administrative and technical support during the field work in Mzumbe ward, Morogoro. I am grateful to Prof Peter Msoffe for discussions and exhaustive comments on the data collection methodology and on the report.

I wish to express my thanks to all 114 women local chicken producer from individual and focus group discussion,3 extension staff of Mvomero District and 3 veterinary officer from Sokoine University of Agriculture, Morogoro who took interview with me. I thank you for your patience and kindness to provide your cooperation during field data collection.

Lastly, I would not have reached the end without the unyielding support of the family of Mr & Mrs Prof. Elliot C.Phiri, Anna Laizer, Mrs S. Ngellejah and Mlay's family, for the great support of taking care of our children when I was away. I appreciate the moral and spiritual support from my pastors, prayer partners, church members, and friends for greater job of taking care of my children while I am away from home.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS

DFID	Department for International Development,UK
FAO	Food and Agriculture Organization
FGD	Focus group discussions
GoT	Government of Tanzania
ICT	Information and communication technologies
IFAD	Iinternational Fund for Agricultural Development
MAC	Ministry of Agriculture and Cooperatives
MOD	Ministry of Development
NALERP	National Agricultural and livestock extension rehabilitation project
NCD	New castle diseases
SANDP	Southern Africa Newcastle Diseases Control Project
SPSS	Statistical Package for the Social Sciences
SUA	Sokoine University of Agriculture

ABSTRACT

A study on women and chicken production particularly on marketing and disease control in chicken production to improve livelilhood in Mvomero District, Morogoro, Tanzania was undertaken .Women local chicken producers in two villages Sangasanga and Changarawe in Mzumbe ward, Mvomero district were involved. The objectives were to identify the factors contributing to low chicken production among women, to examine the impact of Newcastle diseases and to find out the role of extension services on prevalence of Newcastle diseases among women households engaged in local chicken production.

Focus group discussions, observations and individual interviews were used to collect information's on factors contributing to low chickens production, Impact of Newcastle and access to extension services of women involving in local chicken production on the prevalence of Newcastle diseases. The respondents in this study were 2 focus group of 20 women from each group,3 extension and veterinary staff and 74 individual women local chicken producers.

Results showed that male headed households accounted for more than half (55.4%) of the local chicken producers, followed by single female headed (29.7%) and female widows (14.9%). Decision making regarding marketing process is mainly done by men. All family members provide labour for production activities but women and children do most of the activities. Factors that contribute to low production mentioned during the focus group discussions and individual interviews were diseases, effectiveness of extension services and marketing process. Women in both focus group discussion and individual interviews showed that Newcastle disease was a major constraint in village chickens production. Difficulties in marketing process were findings in place where there was higher local chicken demand where the price is higher, getting low price due to middlemen, no training on marketing knowledge and seasonal variation of price. Results on extension services delivery show that most of respondent receive less than what they expect. For instance, only 6.8% of the producer get extension service monthly, 87.8% once every six months, and the reaming 1.4% receive services only once per year.

It was concluded that improvement of the local chicken production poultry in rural area as a means of income and food for the majority of women in Tanzania is highly desirable. Despite low level of extension services on one hand and of low competence of rural women in local chicken production in the other hand, women can still be considered as potential producer in local chickens enterprise. However, they are not given the opportunity to attend training or seminar on production improvement as the invitation letter is most of time addressed to the head of household. Nevertheless, they spend most of their time at home on domestic activities hence the easiness to carry out the production activities. They would therefore benefit more from if encouraged to participate fully in training, workshop on local chickens husbandry and to use that knowledge to the well-being of the family and development of the rural life in general.

CHAPTER ONE: BACKGROUND INFORMATION

1.1 Introduction

Livestock production is among the major agricultural activities in rural Tanzania where rural farmers survive by various forms of subsistence crop farming and local chicken production (Msami, 2000, 2007). About 60% of food production in Tanzania is contributed by women, this is so, because rural women provide 80% of the labour force in farming (Mzinga, 2002). According to National Census of Agriculture (MAC 2003) out of 33.3 million poultry in Tanzania, 31.6 million are local chickens of which 2.1 million chickens are from Morogoro region. The remaining chickens comprise exotics layers (1.27 million) and broilers (0.57million). In rural areas, the local chicken are mainly owned and managed by women and children. These are often essential elements of female headed households' also an important source of income for women in the village for the family (Goromela, 2009), In Morogoro just like the rest of the country the traditional small scale dominates the poultry production. Local chicken supply 100% and 20% of the poultry meat and eggs consumed in rural areas and in urban areas, respectively (Boki, 2000). The local chicken is believed to be viable and promising for farming families in rural community and can attain reasonable body and egg weight under zero input free ranging mode of nutrition (Msoffe et al, 2002)

Agricultural extension, besides being a core function of the government, has been and still remains almost entirely financed by the public sector (Mattee & Rutatora, 2000). The Ministry of Agriculture and Cooperatives (MAC), has been restructured in order to create a small manageable organization, which is more efficient and responsive to farmers' problems and needs. For many years extension programmes have been implemented by MAC, using its staff from the national level down to the field level. All extension staff since 1983 has been under the MAC but now they are under the Ministry of local Government . Many authorities viewed the previous arrangement as bureaucratic, ineffective, and too far removed from farmers (Mattee & Rutatora, 2000).

Newcastle disease is an epidemic poultry disease that causes enormous economic losses. The mortality rate due to ND can reach as high as 90% (Minga *et al*, 2001). Sometimes the disease destroys whole flocks during outbreaks. High morbidity and mortality in chickens due to ND calls for appropriate and efficient control of the disease in Mvomero district.

A number of programmes have been designed to control Newcastle Disease. The programmes basically aimed at providing extension services and vaccination to overcome the disease. In general, extension services is a conventional approach of sharing technology to farmers. Examples of the intervention which provided extension services to address ND as a way of improving livelihoods of the rural people in Morogoro include Newcastle Disease, Avian Flu Control Research Project. Despite different efforts and investment of money in the past four years including Newcastle vaccination program implemented by many organization in 2005 to 2008, still Newcastle disease (ND) is a major constraint in local chicken production in Mvomero district. Since local chicken production is important source of livelihoods for women, this study seeks to find the relation between livelihoods among women engaged in local chicken production and extension services in selected villages of Mvomero District in Morogoro, Tanzania.

1.2 Problem Statement

Despite being important for livelihoods of the rural poor and in particular women, local chicken production in Mvomero district is declining due to high prevalence of Newcastle disease. The disease contributes not only to low production of local chicken but also a decrease in rural households' income. As female farmers are major owners of the local chicken in Mvomero district, ND is a threat to their livelihoods and this largely explains why female households have low income and are poor. Among the major reasons for persistence of Newcastle disease is lack of resources, extension services providers and limited logistical support of the extension service to farmers is the most crucial.

1.3 Justification of The Study

In rural Tanzania women are the ones toiling to produce food for household although are not recognized as bread earners. Due to lack of education and being vulnerable to access of income and information, they need to be considered with different programmes to improve their living standard. In the face of this situation local chicken production can be appropriate business to sustain their daily needs like affording foods, school fees for their children, access to health and social activities. This has not been well researched whereby there is a need of exploring more on how local chicken production can increase women's income in rural areas. The study will help exhibit the role of extension staff in assisting the rural women to have more understanding on local chicken production. Also the study will contribute in addressing low chicken production among women, understand the impact of Newcastle disease and prevalence of Newcastle disease in rural areas.

1.4 Research Objectives

The objectives of this study are as follows:

1. To identify the factors contributing to low chicken production among women in Mvomero district.
2. To examine the impact of Newcastle disease in local chicken production among women in Mvomero district.
3. To find out the role of extension services on prevalence of New castle diseases among women households engaged in local chicken production .

1.5 Research Questions

1. What are the factors contributing to low chicken production among the women in selected village in Mvomero district?
2. How has Newcastle disease affected local chicken production?
3. How does accessibility to extension services by women chicken producers affect local chicken production in Mvomero district ?

1.6 Limitations of Study

Extension workers at village level could not provide data like how many women attended in trainings/ seminars on local chicken husbandry practices, this because there was no any training /seminar organized by government since 2004 to date in the two village selected in this study. Missing of records on chicken vaccinated against Newcastle diseases for the last six months, total number of chicken owned in each household to enable me cross check with the information collected during the focus group discussions and individual Interviews.

CHAPTER TWO: LITERATURE REVIEW

This chapter includes the literature which relates to chicken production, poultry production in Tanzania, traditional small scale poultry production households livelihood , Constraints to local chickens production, market channel in local chicken production, communication in extension services delivery, for the case of women in local chicken production Tanzania.

2.1 Poultry Production in Tanzania

In Tanzania the majority of chickens are kept by smallholders and Village scavenging poultry is the dominant form of poultry keeping in Tanzania. According to National Census of Agriculture (2003) out of 33.3 million poultry in Tanzania, 31.6 million are indigenous chickens. Evidently most poultry products consumed in the country are from an Indigenous source and poultry keeping represents an important source of income to women in villages (Anonymous, 2002b). Therefore poultry plays an important role in the production systems and for family life in most communities of smallholder farmers. In the rapid growing towns the demand for meat is high. Most of the slaughtered cattle, sheep and goats are sold to the markets in the urban areas. Thus the availability of meat is limited in rural areas often, leaving poultry as the only animal protein source. Furthermore poultry and eggs are often used as petty cash for small daily needs.

The poultry production is divided into two sectors commercial and traditional .
From statistical, local chickens production appears to be the largest sub- sector compared to the commercial poultry production. Traditional poultry production is comprised by indigenous poultry species This sectors plays a major role in household income and food security. The number of the chicken population trend in Main land Tanzania indicated a moderate increase of 2.6% per year over the period 1995 to 2003 (figure 1).

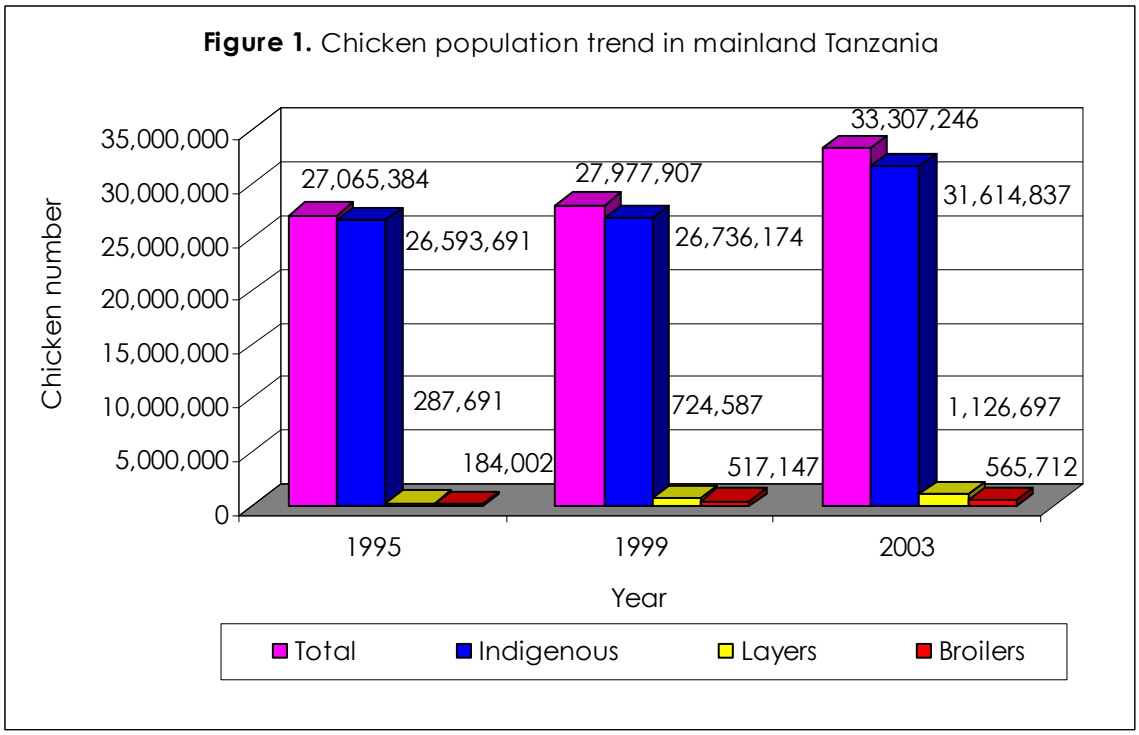


Figure 2.1. Source : Chicken population trend in mainland Tanzania (Goromela, 2009,p3)

2.2 Traditional Small Scale Poultry Production

In Tanzania, the largest poultry production sector is traditional small scale poultry production which supplies all poultry meat and eggs consumed in the rural area (Boki ,2000).The poultry species in this sector accounts for about 95% of the total poultry population (Agriculture sample Census,2003).The local chicken production are kept by small scale farmers under the free range system commonly known as village, indigenous and rural chicken and are widely distributed over all agro-ecological zone in the country (figure 1.2). In general, free range system is the main poultry husbandry keeping system practiced by the majority of the Tanzanians living in the rural areas. Local chicken production in rural areas play important role in almost every rural household and in the livelihoods of rural farming communities Local chicken production in Tanzania kept for various purposes, which are a source of households income, gifts, manure, decorations and sports. (Goromelo,2009).

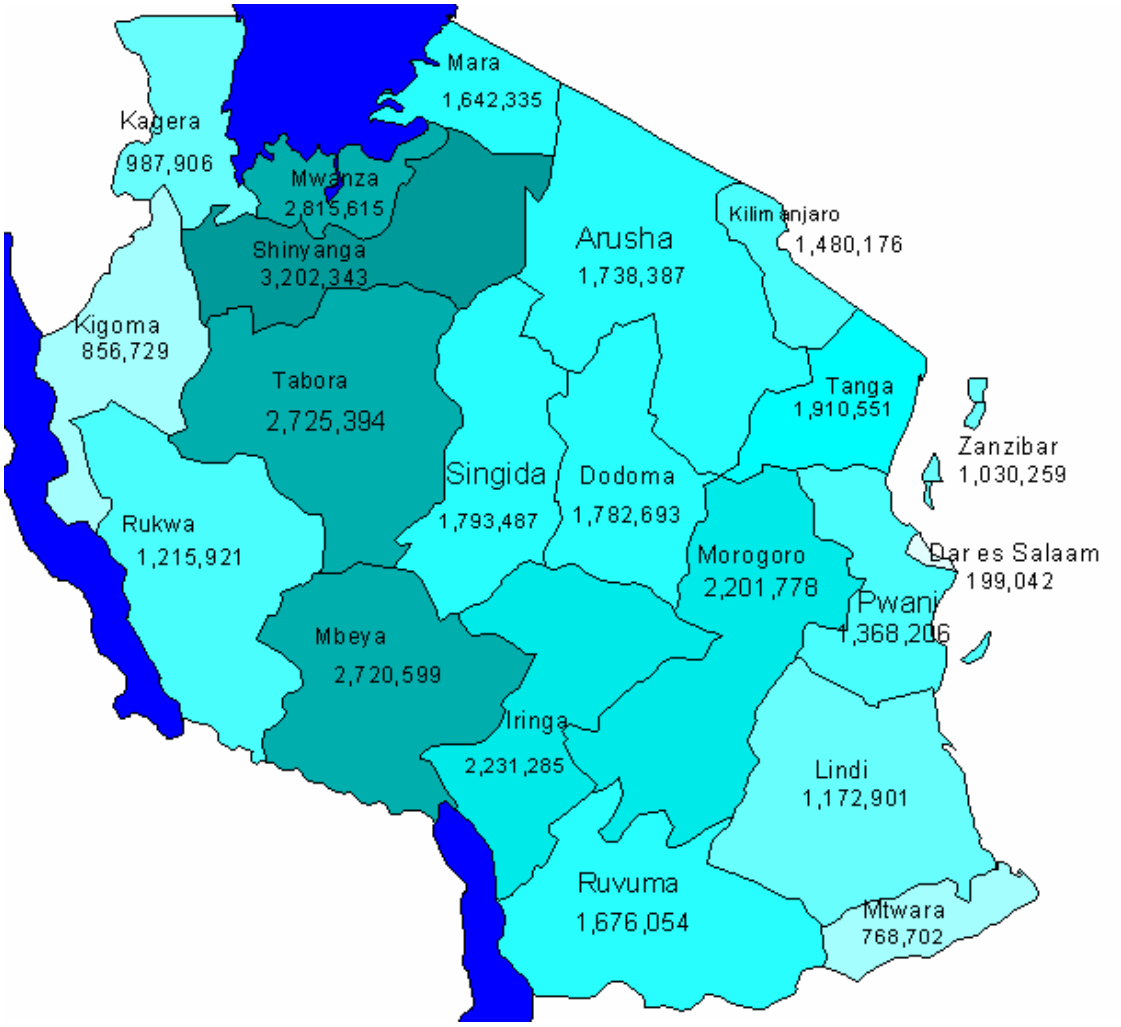


Figure 2.2. Distribution of Indigenous chickens by region
Source: (National Sample Census of Agriculture 2002/2003)

Apart from food security and income generation, local chicken production takes part in cultural and social life of chicken farmers in rural areas (Dolberg and Petersen, 2000; Pedersen, 2002). For instance, local chicken are used as gifts to visitors and relatives as capital for youth and newly married women as well as token of appreciation for services rendered, manure, decoration and sports (Nwagu, 2002; Golomela, 2009). In addition, in rural areas, local chicken are reserved for special guests or at ceremonial gatherings such as marriage feasts, weddings, funerals, strengthen relationships between in-laws and to maintain family contacts by entrusting them to other family members (Muchadeyi *et al.,* 2004). Furthermore, local chickens are used to perform a valuable sanitary function after eating discarded food and controlling pests in gardens. Under traditional believes which are gradually being replaced by new religious believes, some types of local chickens were used in traditional rituals. Cocks are also used as alarm clocks in rural areas. Used as traditionally medicine and can be bartered with food products to meet family needs (Kusina and Kusina, 1999; Golomela, 2009)

2.3 Constraints to Local Chickens Production

The major constraints under local chicken production in developing countries are high mortalities, low egg production and slow growth rate (Goromela, 2009). High chicken mortality rates of 40% to 80% have been recorded in local chickens in Tanzania and other African countries (Mwalusanya *et al*.,2001).The cause of high mortalities are diseases and predation .The mortalities have been grouped according to age among local chickens, from 8 – 10 weeks loss is about 40-50% and is due to predators (Mwalusanya et al.,2001).The loss during adult-hood is mainly due to disease especially Newcastle disease (Minga et al.,2000). In Tanzania Newcastle disease has been singled out as the most disturbing, where by all village flocks may be devastated.

2.4 Marketing Channel in Local Chicken Production

The value of local chicken in national economies of developing countries and its role in improving the nutritional status and income of many small farmers' and poor households in rural areas has been recognized by various researchers and rural developments agencies in the last two decades (Kitalyi, 1998). Other studies reported that village chicken in Africa provide employment opportunity and disposable income for small scale farmers, particularly in the off seasons, rural poultry production can be integrated very well into other farming activities as it requires very little time and investment (Branckaert,2007). Marketing channels include selling of the chickens and eggs at households within the village, on roads sides, during entertainment ceremonies and even in village and urban markets . The market channels are described as informal and poorly developed (Mlozi et al 2003).However it had been reported that free-ranging local chickens are on high demand and fetch high market prices in urban markets of Malawi, Nicaragua and many developing countries in Africa and Asia because of preferred attributes such as being tastier than improved broiler strains (Branckaert and Guèye 1999) cited in Gondwe , 2003.

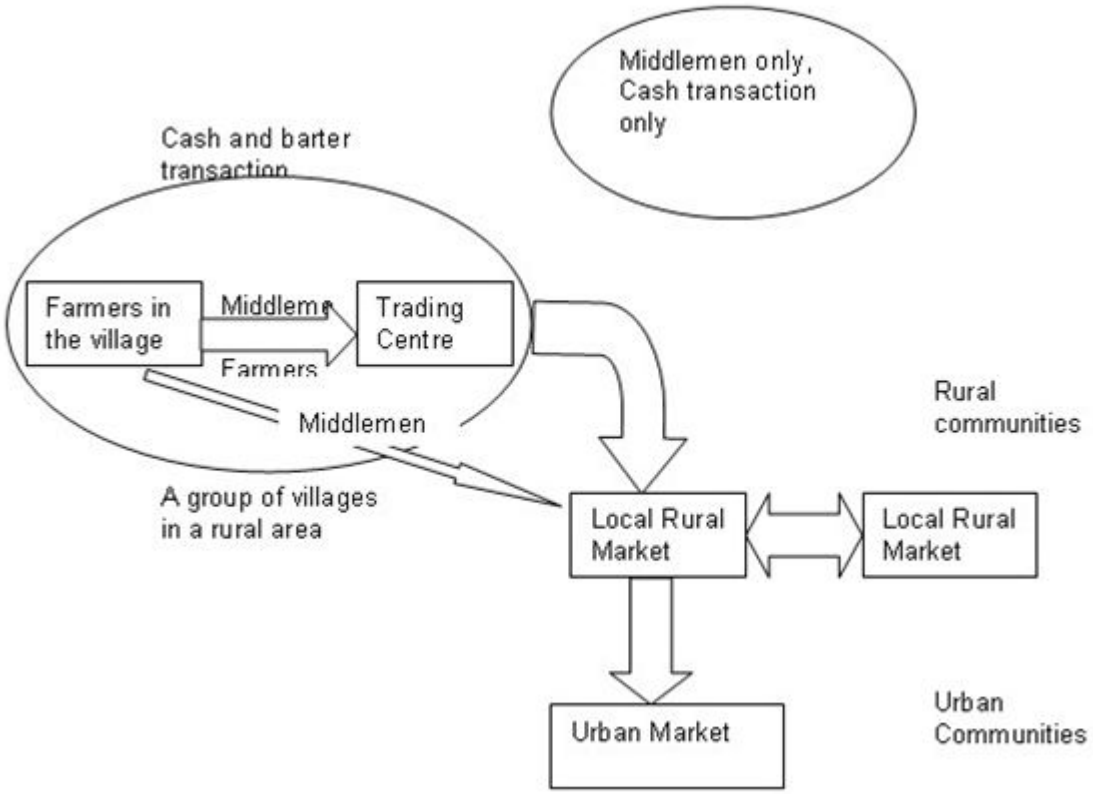


Figure 2.3. Marketing channels, players and flow for local chickens from producers to consumers
Source: (Gondwe , 2003)

2.5 Household livelihoods

In this study livelihoods refers to the livelihood of rural women chicken producers in local chicken production based on capabilities, assets and activities in their environment. Livelihood analytical models introduced adopted by individuals and different agency. The concept of livelihoods may mean beyond the coordinates of production, employment and income alone, but include the more holistic view and various activities that not only enhance household income but also food security, health, social networks and savings (Shackleton *et al.*, 2000). The approach emphasizes the social and environmental as well as economic dimensions of rural life. A range of definitions in livelihood derived from Chamber and (Conway,1992) has been widely cited in the development literature, and with minor modifications it has been used by a number of researchers, academic and development practitioners .

"A livelihood comprises the capabilities, assets (stores, resources, claims and access) and activities required for a means of living."(Chambers and Conway ,1992)

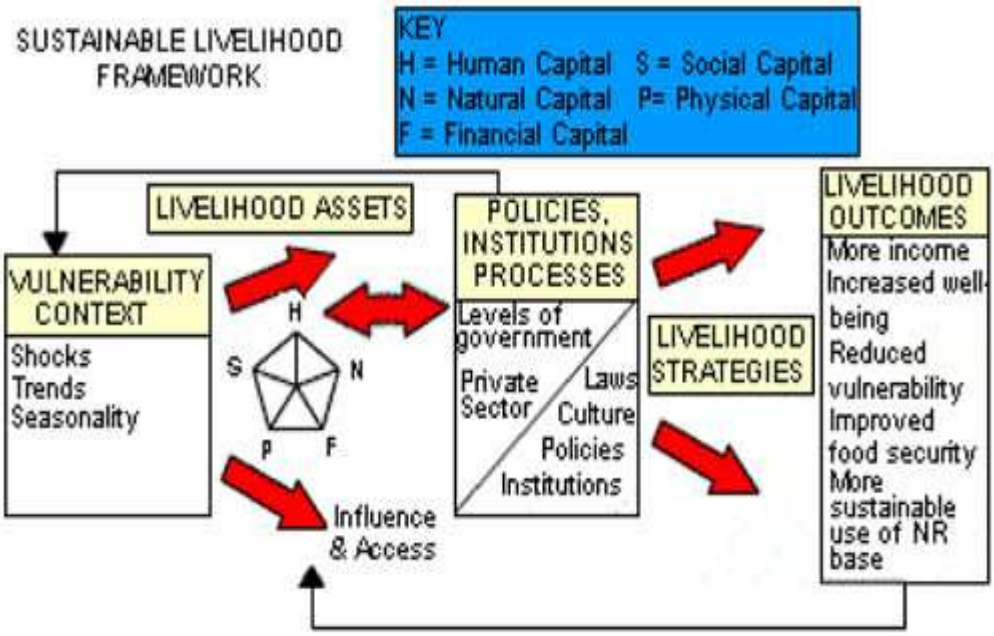


Figure 2:4. Sustainable livelihood frame work
Source : Sustainable livelihoods framework (DFID, 1999).

Sustainable livelihood frame work it has been used by researchers concerned with poverty reduction, sustainability and livelihood strategies (Scoones,1998).This frame work now called the sustainable livelihoods (SL) frame work is viewed as equally applicable to urban as to rural survival strategies. Assets in this frame work is considered to be stocks of different types of capital that can be used directly or indirectly to generate livelihoods (Carney, 1998).This assets can give rise to flow of output, possibly becoming depleted as a consequence, or may be accumulated as a surplus to be invested in future productive activities

According to DFID 1999 and (Scoones ,1998), a livelihood comprises the capabilities, assets and activities required for a means of living. A livelihood is sustainable when it can cope with and recover from stresses and shocks and maintain or enhance its capabilities and assets both now and in the future, while not undermining the natural resource base. (Farrington *et al*., 1999) have given a perspective on early experience in implementing sustainable livelihoods as a new approach in poverty alleviation. This approach draws on improved understanding of poverty not just in terms of income and consumption, but also in terms of absence of basic capabilities to meet physical needs (health, education, clean water and other services) The understanding is also highlighted by (Chambers ,1987).

Based on the five types of capital identified by the sustainable livelihood framework, five assets are identified:

Natural capital: consists of land, water and biological resources such as trees, pasture, and biodiversity. The productivity of these resources may be degraded or improved by human management**.**

Financial capital: Consists of stocks of money or other savings in liquid form. In this sense it does not includes financial assets only but should also include easily disposable assets such as livestock, which in other senses may be considered as natural capital. It includes **i**ncome levels, variability over time, and distribution within society of financial savings, access to credit, and debt levels.

Physical capital: Is that created by economic production. It includes infrastructure such as roads, irrigation works, electricity, reticulated equipment and housing.

Human capital: is constituted by the quantity and quality of labour available. At household level, therefore, it is determined by household size, but also by education, skills, and health of household members**.**

Social capital: Any assets such as rights or claims that are derived from membership of a group. This includes the ability to call on friends or kin for help in times of need, support from trade or professional associations (e.g framers 'associations) and political claims on chiefs or politicians to provide assistance (Carney, 1998) There is a consensus that livelihood is about the ways and means of 'making a living'. The most widely accepted definition of livelihood stems from the work of Robert Chambers and Gordon Conway: '*a livelihood comprises the capabilities, assets (including both material and social resources) and activities required for a means of living*' (Carney, 1998); Ellis, 2000) suggested a definition of livelihood as 'the activities, the assets, and the access that jointly determine the living gained by an individual or house hold. In other language livelihoods depends on resources (such as land, crops, seed, labour, knowledge, cattle, chicken, money, social relationships), but these resources have to be connected to the issues and problems of access and changing political, economic and socio-cultural circumstances such as gender (ref). Surveys in a number of African countries have reported gender plurality in ownership, management and decision-making which hamper development (Alders, 1997).

Generally rural poor households setting having the interactions between internal livelihood components and the external influences normally reveals a pattern of vulnerability. The most commonly used definition of vulnerability is that of Chambers:
"Vulnerability here refers to exposure to contingencies and stress, and difficulty in coping with them. Vulnerability thus has two sides: an external side of risks, shocks and stress to which an individual is subject; and an internal side which is defenselessness, meaning a lack of means to cope without damaging loss." (Chambers 1989).

2.6 Women and chicken

Tanzanian women are poorer than men despite the fact that women are the major actors in productive and domestic activities, of the total population, approximately 51.6% (1995) are women. Further still, given their contribution to society Tanzania women do not receive adequate remuneration for their work. Traditional and cultural barriers still block women access to and control of land and other property. (Tanzania, 1998 National poverty eradication strategy**)** The physical integrity of Tanzanian women is not sufficiently protected. In fact, violence against women has increased in recent years **(**Mzinga 2002). Access to local chickens for women encourages involvement of women in rural development, particularly where technology transfer includes the participation of end users. Women involvement in rural poultry improvement programmes contributes to human development by increasing access for rural women to income, knowledge, and thus increase production efficiency (Bradley, 1992; Scola, 1992). (Bradley ,1996) suggested that incorporation of gender issues particularly rural women in such programmes will increase contribution of poultry production in national economies. Therefore transformation of the village chicken production systems of Africa into economically viable enterprises would require better understanding of the socio-economic aspects of the production system as suggested by (Kitalyi ,1996). The composition and structure of rural households change (Snyder, 1990), making gender responsibilities to undergo rapid change, typically with rural women becoming more responsible for household food security and children's welfare as indicated by increasing of female-headed rural households, in most developing countries.

In sub-Saharan Africa, women head an estimated 45 per cent of rural households in Kenya, 35 per cent in Malawi, 30 to 40 per cent in Zambia, and 15 per cent in Nigeria (FAO, 1993). Most livelihood models focus on the household as the most appropriate social group for the investigation of livelihoods, although external measures to manage risk may be social or public in nature. Household livelihoods are however founded on the aggregation and dynamics of its individual members, which suggests that to develop understanding of the

pervasive features of rural households some account of the intra-household dynamics (e.g. by gender, age or status) will be necessary.(Sahan *et al* 2009)

Definitions of households have conventionally emphasized co-residence, sharing the same meals -“cooking from one pot” - and undertaking joint or co-ordinate decision-making; and rural households have been regarded as the centre of rural social systems. Recent concepts of the household broaden the definition to allow for overlapping social groupings, including family or other members who may be physically dispersed but socially interdependent. Seasonal (and permanent) migration of individuals and households has been and is presently a significant feature of Tanzanian life. This broader definition which includes migrants who contribute to or call upon household resources, would thus seem more appropriate.

In rural areas household livelihoods are directly and subjectively influenced by internal working of the assets, activities and out comes relationships (Scoones ,1998). It provides the context within which households decision making processes unfolds, mediate access to household assets and the use to which they can be put, influence the strategies and set activities thereafter that households adopt as well as their potential outcomes’.

2.7 Women and Extension Services

Agriculture extension services definition which I will use in this study cited in Leeuwis 2004, refers to “ *Assistance to farmers to help them to identify and analyze their production problems and to become aware of the opportunities for improvement*”. ‘Extension involves the mindful use of communication of information to help people form sound opinions and make good decision ‘(Van den ,1974; Van den & Hawkins,1996) Agricultural extension services still do not attach much importance to reaching women farmers or women on the farm. In order for extension services to reach women policy makers and administrators have to change their thinking that men are the farmers and women play only a "supportive role" as farmers' wives (Kitalyi ,1996).

The definitions of communication in this study will refer as the process through which women local chicken producer exchange meaning through the use of information’ of local chicken production for the food security and income for needs of family. communication, extensions services and stakeholders are multiple-way process where stakeholders contribute to knowledge sharing in local chicken management under the existing production systems. in order to improve local chicken productivity and income in rural Mvomero district. Extension services such as communication for innovation is defined as a two way or multiple-way process, in which several parties can be expected relevant insight, and which may have actions implications for all parties to contribute (not only farmers, but also researcher, extenstionist, policy makers, agricultural industries,etc) involved in the process (Leeuwis, 2004).

In rural development women play a major role in Agriculture both international and national level. Recently there is a growing awareness of the need to reach women farmers and fully involve them in development programmes but there is a problem in effective communication and working with women. These problems include lack of adequate training materials addressing the issue of working with rural women.

The constraints affect rural women's ability to improve yield, profit, and efficiency in agriculture. Among of the constraints are women's legal and cultural status, which affects the degree of control women have over productive resources, inputs such as credit, and the benefits which flow from them (Olawoye, 1989); Agricultural extension strategies traditionally have focused on increasing production of cash crops by providing men with training, information, and access to inputs and services. even where attendance of women

is quite high as a proportion of the total, women are given instruction mainly in home economics and craft subjects, not technical subjects like agriculture (FAO, 1997)

Different extension services are equipped with supporting individual farm households in identifying interpreting and solving problems on their specific farms. Communication strategies refer to the way in which communicative intervention contributes to societal problems solving. (FAO,1993)The extension services in the rural farm management act as Advisory communicative services when the farmers ask for advice or assistance on their farms in solving their management problems. Problems can be urgent or long time scale to equip knowledge for farmers in solving problems should be aligned with the awareness of what their goals and aspirations are in the first place (Leeuwis 2004).The communication workers should have the ability to helps the farmers to access to relevant kinds of expertise, adequate skills to elicit the needs and expectations of farmers according to their needs and interest. Considering diversity in farmers goals, aspirations on their farms products. In Africa women they are produce between 60-80% of the whole food says Lubbock, A (ICT-ictnews.net 2009) from IFAD gender- technical advisory division. A part from doing most of the farming work still their work is not recognized. Lubbock says women live with all of the constraints that affect all smallholder farmers - difficulty in access to credit, to services, lack of money for inputs, poor infrastructure and poor markets. But beyond these are constraints that specifically affect women.

Women farmers also face difficulties on the accessing extension services due to their responsibilities on the productive and reproductive roles, most of their time is occupied with the domestic commitments, including child care, feeding the family (Sweetman, 2001). Communication intervention between extension staff and farmers is very important, it gives full access to relevant knowledge, experience, insight that stakeholders having in regarding with their problems, another advantage of interractiveness is that it gives proper feedback, getting sufficient learning capacity in intervention process. (Leeuwis, 2004).The contribution of women farmers in the household Income and limitations on the their access to productive resources, assets and opportunities and livelihood strategies they adopt in response to them.

This frame work The local chicken production in Mvomero district use the extension services to improve the local chicken production among the women chicken producer with the aim improve the house hold livelihood earning the food and improve income. Women farmers need to access these services

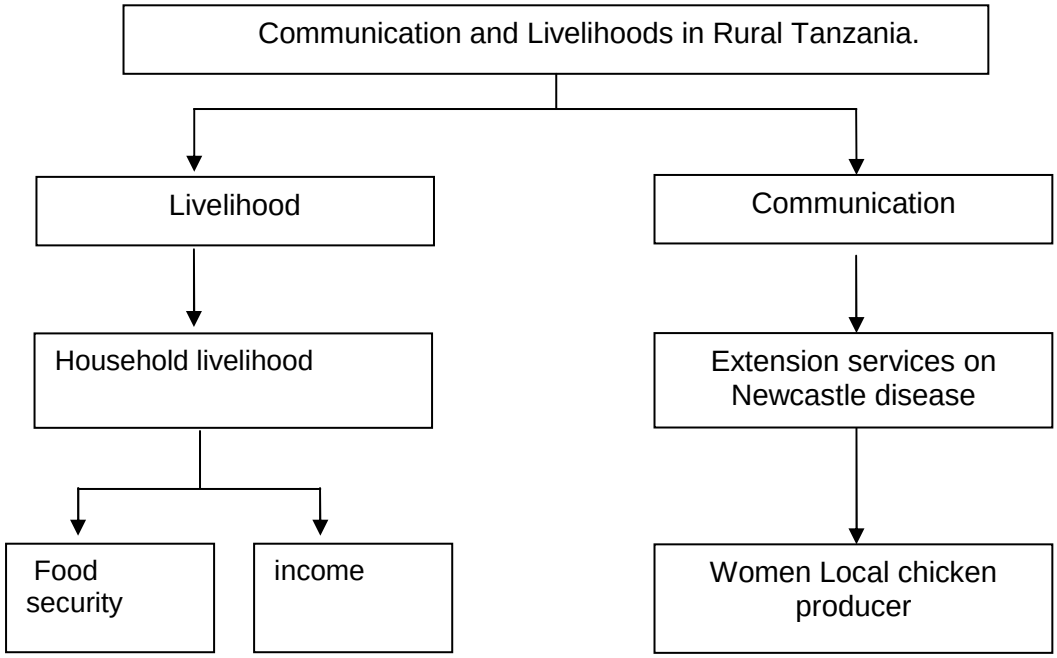


Figure 2. 5. Conceptual frame work: Communication and Livelihoods of Women in Local Chicken Production in Mvomero District.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Research design

This research used both qualitative and quantitative approach, it was based on empirical data and literature. A case study was used to collect data which involved in-depth interviews, observation, structured questionnaires and focus group discussions. (see annex 6)

3.2 Selection of the respondents

The study was designed to probe the research issue from four categories of respondents as explained here under:

Two focus groups with 20 women from each village, Three Extension staff from Sangasanga and Changarawe village, three veterinary officers and 74 women for personal interviewing. Focus group discussions were conducted to check out the information about challenges/constraints to local chicken production factors contributing to low chicken production and access to extension services. The group members were selected based on their experiences on Newcastle diseases and local chicken production.

Three extension officers at village level were selected to exhaust information related to extension service delivery to women on local chicken producer in Mzumbe ward in Mvomero district , they are considered to be the first and closest contact people to farmers. The three veterinary staff were selected to get information on Newcastle vaccination, the challenge's experienced on the vaccines distributions, preservations, effectiveness and perceptions of the farmers on the Newcastle vaccines.

The fourth category was 74 women local chicken producers to exhaust information on access of women to extension services, household characteristics, divisions of labour, types of livestock kept, chicken management, and health information on local chicken production this was guided by structured questionnaires with information collected by the help of extension staff and researcher from Sokoine University.

3.3 Method of data collection

Both primary and secondary data were utilized in this study .The primary data was gathered through individual interviews, focus group discussion and observations whereas secondary data was gathered through various literature on the topic.

3.3.1 Primary data

The field data collection started on 13/July – 10 /August/2010. Both qualitative and quantitative data was collected. A case study method was used to gather empirical data from two villages selected for this study. The methods used were focus group discussions (FGD), person interviews guided by checklist questions, questionnaires and observations to validate interviewee's information. The study was conducted by involving 3 extension officers at village level, two focus group discussion with 20 women local chicken producers ,74 women local chicken producer from each village and 3 veterinary officers who has experience on Newcastle vaccines production, preservations and distribution to rural areas, with the aim of collecting information on their challenges, opinions, suggestions, perceptions and other relevant information in Newcastle diseases and extension service delivery in order to identify the factors contributing to low production and low income among women in Mzumbe ward in Mvomero district.

Focusing group discussions were meant to give an insight into a group's perception, attitude, experience and assumption on Newcastle diseases and extension services support on local chicken production in selected village in this study. The group members built on each other's ideas to provide a view that was not possible to capture at the individual level. The discussion provided new perspectives. The focus group discussion helped to generate qualitative data and obtain the general views and source issues through discussion on local chicken production among women. All Women for focus group discussions and individual interviews were selected based on their experience on Newcastle diseases and extension services delivery on local chicken production and willingness to participate in this study. The focus group discussion included women, young and old women farmers to get diverse experience. The interviews were conducted using an open-ended questions in order to collect the ideas, experiences, suggestions and opinion on the Newcastle disease and extension services delivery. The checklist question and questionnaires were used to provide guidance during the interviewing.

Observation techniques helped to study the factors that contribute to low local chicken production in their naturally occurring setting to give deep insight on the information collected from the interviews and cross check with the real situation observed in the field. The information like distance from village to extension services centres, number of chicken per household, housing systems, types of feeds given and availability of livelihood assets.

3.3.2 Secondary data

The desk study phase collected the theoretical information which was used to understand concepts as inputs of the study. The information from specialized journals (normal and review) latest books, Monographs, Editorial volumes, PhD. theses, departmental reports /statistics national proceedings Internet sites, and local reports found in selected village were used during the desk study. The literature review provided both theoretical and empirical data for analysis.

3.4 Data processing and analysis

Empirical data were analysed through content analysis with respondents during interviews, focus group discussions, observations and data base was developed to store data using Microsoft Excel (Version 2003). SPSS (Analytical software Version 12.0 for windows) was used to compute descriptive statistics and frequency distribution. Harvard tools analytical frame work were used to collect data from women interviews.

CHAPTER FOUR: BACKGROUND INFORMATION OF THE STUDY AREA

4.1 Description of The Study Area

This study was conducted in Mvomero district in Mzumbe ward located in Morogoro region within Tanzania (Figure 4.1). The Information was collected from women producers in two villages in Mvomero district who keep local chicken as source of income and food security for the rural community. The first village was Sangasanga which is located near the Tanzania Zambia highway. There is good opportunity for the women in this village to sell their chicken along the road where a lot of passengers pass by buses and lorries. The second one was Changarawe village which is 5km from the highway.

The selection of this study area took into consideration the fact that the villages are very famous for keeping the local chicken as source of income and food security. Another criterion for selecting the study area was experience of women local chicken producers on Newcastle diseases, accessibility, cooperation and communication using national language (i.e. Kiswahili). Other livestock kept in this area are goats, pigs and ducks. The main economic activities for the farmers is growing crops such as maize, rice cassava, sweet potatoes, yams and beans.

4.2 Background Information of Study Area

4.2.1 Geographical Description of Mvomero District

Mvomero District is among the six district councils of Morogoro Region. It is a new District split from the former Morogoro District. Others are the Morogoro, Kilosa, Kilombero, Ulanga, and Morogoro Municipals. The district boundaries are as follows: to the north is Handeni district, to the east is Bagamoyo District, to the south by Morogoro Municipal Council and Morogoro District, whereas to the west it is bordered by Kilosa District Council. Mvomero District is located at North East of Morogoro Region lying between 8° 00 □ and 10° 00" Latitudes south of equator; and lies between Longitudes 37° 00" and 28° 22" East. The District has a total area of 7,325. km².

Figure 4.1 Maps of Tanzanian and Morogoro Region showing Mvomero District (study area)
Source: GoT (2002)

4.2.2 Populations

According to 2002 census population of working age group were 137,126; of which males were 68,870 and females were 68,256. In 2007 population of working age group projected to be 153,657 for both sexes; of these, males were 77,166 and females were 76,491. The ethnic tribe in Mvomero district is Waluguru and forms the majority of the population. The population size of two villages selected for this study in Mzumbe wards are as follows:

Sangasanga village has 354 households which includes four sub villages Masanze (140), Gezaulole, (107) Mnazimmoja (60) and Mtambani (47), with the total population of 739 which includes 373 female, 319 male, 38 male children and 44 female children. The second village of this study was Changarawe which has a total of 870 households which includes ten sub villages; Osterbay "A" (101) male 85 and female 254, Osterbay "B" (88) male 245 and female 257, Chemichemi (75) male 248 and female 250, Kiwanjani (105) male 273 and female 275, Changarawe"A" (90) male 262 and female 266, Changarawe"B" (68) male 255 and female 256 ,Barabarani (82) male 292 and female 294, Mongola (78) male 245 and female 245, Maili kumi (85) male 254 and female 256 and Bomba sita (98) male 259 and female 260.

4.2.3 Administration

Administratively, Mvomero district has been is divided into 4 Divisions, 17 Wards, and 101 Villages as shown by the table below.

Table 4.1 Distribution of administrative units in Mvomero district

No	Division	Wards	Villages	Harmlets
1	Mvomero	4	31	154
2	Turiani	5	27	158
3	Mgeta	4	22	156
4	Mlali	4	21	109
5	Total	17	101	577

Source: Mvomero District Council (2002)

4.2.4 Agriculture

In general Tanzania is divided in four features zones. Morogoro region is found in the feature zone II of the Agro Ecological Zone**.** The essence of having such zones is due to the fact that the physical features of Tanzania mainland consist of diverse ecological and climatic zones that accommodate different agriculture patterns. The features of zone two, of which Morogoro is within, is that of coastal areas, having rainfall of between 500-1000 mm, allowing crop production, fishing and intensive use of poultry.

Table 4.2 Main features and Agro ecological zones of Mororogoro Region

Feature Zone	General Characteristics Feature	Rainfall	Specific dominant food crop	Characteristic Main activities	Features /representative area
II	Mostly coast area	500-1000mm	Paddy, composite, maize cassava and ground nuts	Agriculture, fishing and intensive use of poultry	Morogoro

Source: Ministry of Agriculture and food security

4.2.5 Livestock Population

Data collected in 2006 across Morogoro Region shows that chicken occupy the largest proportion (55.5 %) of all livestock kept, followed by cattle (22.6 %), goats (18.6 %), sheep (2.9 %), pigs (0.9%) and donkeys (0.1 %) (See Table 4.3).

Table 4.3 Estimated Livestock Keeping in the Region by District, 2006

District name	Cattle	Goats	Sheep	Donkey	Pigs	Chicken	Total/ District	% District
Kilosa	215040	93737	25098	2930	5097	500612	842,514	32.1
Kilombero	68106	10090	5806	157	6902	365670	455,446	17.4
Ulanga	97263	16714	18084	262	495	346219	479,037	18.3
Mvomero	172,827	51,161	20,121	385	6243	192325	383,584	16.9
Morogoro urban	4170	4300	180	3	3130	25640	37,423	1.4
Morogoro	35,935	295,404	5467	55	2543	25804	364,908	13.9
Morogoro region	593,341	471,406	74,756	3,792	24,410	1,456,270	2,623,975	
%livestock type	22.6	18.0	2.9	0.1	0.9	55.5		100

Source: Morogoro Regional Commisioners' Office, 2006

4.2.6 Livestock Diseases

As is the case for the whole country, livestock diseases are quite a problem in Morogoro Region contributing to low livestock production. As shown in (table 3.4)Newcastle Disease has been the largest causative agent for animal mortality, causing a large proportion of livestock starting from the year 1991 to 2000. During 1991 and 1992, East Coast Fever (ECF) disease has been the second causative factor for mortality for livestock kept. During the 2006 survey, Newcastle Disease had shown up as the most mortality causing disease followed by East coast Fever. Due to its nature of transmission, the increase of Newcastle Disease deaths indicates the need for improved availability of vaccines through improved veterinary services.

Table 4.4 Trends in Livestock Diseases in Morogoro Region, 1993-2006

Disease	Status	No	Year						Total Affected Death
			1993		2002		2006		
Anaplasmosis	Affected	766	% of Total	1993	2002	% of Total	2006	% of Total	
	Death	240	6.45	1462	449	10.60	377	8.84	3054
ECF	Affected	1231	9.74	345	33	1.67	11	1.91	629
	Death	994	10.37	3545	599	14.15	992	23.25	6367
Babesiosis	Affected	199	40.32	2022	36	1.82	52	9.03	3104
	Death	9	1.68	428	5	0.12	2	0.05	634
Trypanosomiasis	Affected	8293	0.37	104	0	0.00	1	0.17	114
	Death	8293	69.76	7761	1620	38.26	2396	56.15	20.060
Newcastle Disease	Affected	161	6.53	610	314	15.87	300	52.08	1385
	Death	1365	11.75	3834	1561	36.87	500	11.72	7,290
Total	Affected	1065	43.04	1828	1595	80.64	212	36.81	4696

Source: Morogoro Regional Commissioners Office, 2006.

Sex Ratio

Sex ratio is defined as the number of males per 100 females. The overall sex ratio for Mvomero District Council was 101 males for every 100 females. It was above 100 which indicates an excess number of males over females in Mvomero District. Moreover, the sex ratio at birth (0-4) was over 100 which indicates an excess number of males over females.

Working Age Group (15-64)

According to 2002 census population of working age group were 137,126; of which males were 68,870 and females were 68,256. In 2007 population of working age group projected to be 153,657 for both sexes; of those males were 77,166 and females were 76,491. The ethnic tribe in Mvomero district is Waluguru and forms the majority of the population.

CHAPTER FIVE : RESULTS AND DICUSSIONS

This chapter will analyze and discuss the results of the study. The main focus is on factors contributing to low local chickens production among women, impact of Newcastle disease and access of women to extensions services, prevalence of Newcastle diseases in local chickens production and marketing.

5.1 Factors Ccontributing to Low Local Chicken Production

Household characteristics and activities

Findings from 74 women individual interviews showed that most households were male headed (55.4 %), followed by single female headed (29.7 %) and widows (14.9 %). Most women had education level of primary school (81.1%) whereas the remaining percentage was shared by secondary school (12.2%) and college education (4.1%) and women who did not go to school (2.7%). The major activities were farming 69 (93.2%), others where temporary off-farm income generating activities such as fishing, small business 4(5.4%) and only 1 woman (1.4%) was without occupation. Decision making on marketing process mostly was done by men. Production activities mostly done by all family members but women and children do most of domestics activities (see annex 7).

- **Household heads**

From the above findings collected, Male headed households were higher compared to single female headed and widows. In most of Tanzania there exist a social system in which the man is the head of the family comparable to other communities in Africa which explain high percentage of male headed households, in this study results in (section 1.4). The number of male headed households were higher compared to those headed by females including widows (female headed households only occurred if the women were single). The results are similar to the findings of in rural Zimbabwe where there was low percentage of female headed households, comparatives of male headed households were around 66 percent (Mashatise, 2002; Muchadeyi et al ,2004). Others have reported 92 percent male headed in rural Uganda (Kugonza *et al* 2008).

.

- **Decision making on marketing process**

Decision making on marketing process was mainly done by men while production activities was mainly done by both members in households. Domestic activities such as cooking, housekeeping, fetching, water, child care was mainly done by women and children. It was also observed that women were left behind from access to households income, while they are the ones toiling to produce food for the household although they are not recognized as bread earners. Women in this study where involved in decision making concerning chicken production and management activities such as feeding, cleaning, selling. Children owned a number of chicken but with less authority on selling them. Other studies showed that a number of Africa countries like Nigeria and Cameroon has reported gender plurality in ownership, management and decision making. Women should be fully engaged in local chicken production in rural development, (Abubakar 2007).

- **Low level of education in women**

Another finding in this study shows that most of the women have low level of education. Low level of education in rural community hinders women to participate in community development, creating less awareness in accessing information or new knowledge in agriculture extension service. This makes them to be reluctant in receiving information and knowledge transferred on local chicken production as a result of poverty which has contributed by loss of chickens due to Newcastle disease and lack of access to markets.

Also poverty contributed to poor husbandry practices in local chicken production. It is thus important to pay more attention to women in rural community to improve their level of education by providing them with the theoretical knowledge which is easier to understand and more applicable to them. In rural development, gender balance should be taken into consideration.

- ***Households resources***

In comparing the household resources it was shown that chicken flock sizes were higher compared to the other livestock resources as shown in Table 5.1. This findings is supported by the findings from focus group discussions where women depended on local chicken production as the source of income and food to sustain their daily family needs. **(**see details in annex 5). Other findings from focus group discussions show that local chicken play a major role in rural livelihood as a source of income, food, traditional rituals, wedding ceremony, special food for father in law to mention but a few. The results are in agreement with other studies suggesting that local chicken production is a viable and promising enterprise for farming families in rural communities (Boki, 2002). The findings in this study also show that local chickens should not be treated as a "by-the-way" occupation, but should receive similar attention like other domestic livestock, for the rural women. Other studies agreed on the potentiality of the local chicken production in rural communities as a source of protein and household income (Anonymous 2002b).

Table 5.1 Total number of local livestock in Sangasanga and Changarawe village

Village	Land (acres)	Cattle	Goats	Pigs	Chicken	Ducks
Changarawe	168.25	1	89	65	618	113
Sangasanga	125.75	0	21	15	666	79
Total	**294**	**1**	**110**	**80**	**1284**	**192**

Source: Field data, 2010.

The above table shows that most of the resources in each household were land which was used for crop cultivation such as maize, rice, sweet potato and livestock keeping such as local chicken, pigs, goats, and duck. Chicken numbers were higher compared to other livestock.

5.2 The Impact of Newcastle Disease

Women interviewed in the focus group discussions and individual interviews indicated that Newcastle disease was a major constraint in village chicken production followed by typhoid and swollen eyes, worms, depressed chicks as indicated in the Table 5.2, which shows results from 74 women interviewed. Table 5.3 & 5.4 shows the results from focus group discussion 1 and 2.(see details annex 1)

Table 5.2 Response of Women on diseases occurrence in Sangasanga and Changarawe

Disease	**Respondent frequency**			
	Yes	**Percentage**	**No**	**Percentage**
Newcastle	60	81.1	14	18.9
Typhoid	24	32.4	50	67.6
Worms	9	12. 2	65	87.8
Depressed chicks	3	4.1	71	95.9
Swollen eyes	24	32.4	50	67.6
Others diseases	7	9.5	67	90.5

Source: Field results,2010

The Table 5.2 shows that Newcastle disease highly affected local chicken production compared to other diseases like typhoid, worms, depressed chicks, swollen eyes and other diseases like pox.

Discussion with first the focus group revealed that 85% of 20 women from the focus group in Sangasanga agreed that Newcastle disease highly affected their chickens compared to other poultry diseases. See Table 5.3.

Table 5.3 Response of Women on diseases occurrence in Sangasanga

Disease	Respondent frequency			
	Yes	Percentage	No	Percentage
Newcastle	17	85	3	15
Typhoid	4	20	16	80
Worms	0	0	20	100
Depressed chicken	1	5	19	95
Swollen eyes	3	15	17	85
Others diseases	5	25	15	75

Source: Field results,2010

Table 5.4 Response of Women on disease occurrence in Changarawe

Disease	Respondent frequency			
	Yes	Percentage	No	Percentage
Newcastle	18	90	2	10
Typhoid	5	25	15	75
Worms	0	0	20	100
Depressed chicken	11	55	9	45
Swollen eyes	0	0	20	100
Others diseases	2	10	18	90

Source: Field results,2010

Findings from this study show that Newcastle disease is among the major factors contributing to the low chicken production among the diseases mentioned during the group discussions and individual interviews. Other which have less impact but affect chickens are typhoid, swollen eyes, depressed chicks and worms infection. Findings show that Newcastle mainly occurs during the dry season from August to November . High mortality rate due to Newcastle disease causes low household income and food. Newcastle disease also affects social and cultural activities in rural livelihood as stated before local chickens play a major role in traditional rituals, wedding ceremonies, special food for father's in law as sign of respect . Other uses mentioned during the focus group discussions are use of chicken during sports , source of manure for their gardens and as alarm clock for waking up early in the morning for farms work.

Through the potentiality of local chicken, the extension staff interviews showed that , women local chicken producers saw Newcastle diseases as a killer among of the diseases that affect chickens and source of poverty in rural life. Other study in Tanzania shows also that Newcastle diseases is the main disease which causes high mortality up to 100% in all age groups, the frequent outbreaks of Newcastle Disease (ND) and associated high losses discourage investment in improved husbandry. Consumption and sale of sick birds is a common way of limiting loss due to ND and other diseases. (Msami, 2007; Swai *et al* ,2007; Alders *et al*., 2005a).

Findings show that veterinary officers face a lot of challenges in distribution, preservation of vaccines in rural area. Among the challenges mentioned are long distance from the stores keeps vaccines from villages, poor infrastructure during rain and dry season, poor communication between veterinarians and extension workers during the vaccination on actual number of chickens to vaccinated, difficulties in maintaining cold chains , less awareness of famers before vaccination times, readiness of farmers to lock their chickens' inside to be vaccinated , fear of farmers to lose their chickens and get infected with eye problems because of Newcastle vaccines. From the above challenges, the suggestions from this study so as to ensure the effectiveness of the vaccination in rural community is that there is a need for all stakeholders in local chicken production to agree together on how the vaccination program should be done, when and who facilitates. The stakeholders in Sangasanga and Changarawe are farmers, veterinary, extension staff, local leaders, Non-government organizations. Findings views from veterinary officers on the effectiveness of the vaccines against what farmers complain concerning issues like eye problems, death due to vaccines show that it is not true, Newcastle vaccines has positive results and most of the farmers are happy on using the vaccine as directed to be used every three months. Ignorance from farmers has been reported from two veterinary officers interviewed. There is Ignorance on proper time of vaccination. Newcastle is a virus disease and it's not advisable to vaccinate chicken during the outbreak of disease as the chickens will die and that is what most of farmers do and end up blaming it on vaccines. A sustainable Newcastle control programme is needed in eradicating the diseases this needs to comprise of all stakeholders, more support needed from the Ministry of Agriculture to subsidize the cost of the vaccines for the farmer to be able to pay, vaccine distribution mechanisms should be improved.

In other studies It has been reported that there is an increased awareness of ND vaccination and approximately 40% of farmers are using the vaccine (Jonnes 2008) particularly in areas where the Southern Africa Newcastle Disease Control Program (SANDCP) project (2002 to 2005) was implemented. In these areas a vaccination programme was developed using the thermo tolerant I2 ND vaccine to control ND in village chickens (AusVet, 2006). Vaccine production was established and a community-based delivery system was promoted with training and extension on ND control and poultry husbandry provided to community vaccinators and village livestock workers. Vaccination was carried out three times per year at partial cost recovery.

5.3 Access to Extension Services by Women in Local Chicken Production

Most respondents indicated that they receive less service from extension officers. Most of the farmers had limited knowledge or access to public extension services which led them to low production. The results collected during the individual interviews are shown in Table 5.6. During the focus group discussions women mentioned the following factors as hindering factors in getting extension services in Sangasanga village: long distance from the village to the town centre were the drugs and vaccines are sold 12 (60 per cent), lack of training on chicken husbandry practices 4 (20 percent), infrequent visits by extension staff 17 (80 percent). In Changarawe, results showed that long distance12 (60 percent), lack of training 5 (25 percent), poor visitations 16 (80 percent), few number of the women participating in training offered by the extension public services 7 (35 percent).

Extension services offered in the selected village was from research from Sokoine university of Agriculture (SUA), Extension staff from the Ministry of Agriculture and others sources like retired livestock officers and own women experience on local chicken production.

Table: 5.5 Women's response on frequency of extension services in selected villages

Visiting frequency	Frequency	Percentage
Once per month	5	6.8
Once per six month	65	87.8
Once per year	1	1.4
Never	3	4.1
Total	**74**	**100**

Source: Field results,2010

The table above shows that the highest frequency of extension services was 87.8% for those women visited once per six month and the lowest is 1.4% for those women visited once per year.

Discussion with the first group revealed that main source of extension services where from researchers by 79.7% following by other sourcess (see Table 5.6).

Table: 5.6 Women's response on sources of extension services in Sangasanga and Changarawe village

Source	Frequency	Percentage
Researcher	59	79.7
Extension's	4	5.4
Others	11	14.9
Total	**74**	**100**

Source: Field results,2010

Response on views of Extension workers in women local chicken production

- Extension workers faced challenges of high cost of fuel, high cost of maintenance of motorbikes, irregular meetings, seminar and training courses. Extension workers report on ignorance of the farmers on Newcastle disease, farmers refuse to pay cost of vaccine .
- On the perception of farmers on the Newcastle disease, the farmers categorized Newcastle as a killer for their chicken, source of the poverty in their livelihoods life.
- On the aspect of extension visits, farmers show that extension workers make a visit once per month and extension methods practiced are group meetings.
- The ratio of extension worker per number of farmers ranges from 400- 1800 .

Chicken management

The results from individual interview on chicken management showed that most of women were not keeping any records on the chicken production and few women had used supplement feed to increase the production (see table 5.7). The housing management was poor; some women still kept the chicken outside with chicken hanging on the trees overnight while other chicken were kept in houses with poor ventilation system. During focus group discussion findings showed that most activities in local chicken production are dominated by women and followed by children 15/20 (85 per cent),children 4/20 (15%)

Table 5.7 Response of women on source of feed in local chicken production

Source of feed	Frequency	Percentage
Scavenging	64	86.5
Both scavenging& concentrates	10	13.5
Total	**74**	**100**

Source: Field results, 2010

The highest feed regime were scavenging by 86.5% followed by both scavenging and uses of concentrate13.5 %. (see Table 5.7) .

Table 5.8 Records keeping in local chicken production in Sangasanga and Changarawe Village

Total number of Respondents	Respondent frequency			
	Yes	Percentage	No	Percentage
74	4	5.4	70	94.6

Source: Field results,2010

Chicken management in general was shown to be poor with most of women not keeping records and few women used to feed supplement feed to increase production as indicated in table 5.7. Housing management was also poor, others have poor ventilation, these situations contribute to low production. Other studies also show that most of the chicken are kept in chicken houses, kept within family house, in the kitchen/store and some even kept their birds perched in trees (Msami, 2000), this is in agreement with the findings of this study where some of the women still kept their chickens on trees during the night. This exposes the chickens to the weather which may not be friendly for the health of the chicken. Another study also showed that 95.2 per cent of households provided simple housing at night, Mwalusanya *et al* (2002). During focus group discussion, findings collected showed that most management activities in local chicken production are dominated by women 15/20 (85 per cent),children 4/20 (15 per cent).

Vaccination program for Newcastle disease

The Vaccination program was mentioned during the focus group discussion as one of the factors contributing to the low chicken production, the results showed that the following factors contributed to the poor performance on vaccination program: ignorance, women refuse to vaccinate their chicken, refuse to pay the cost of the vaccines, and lack of knowledge. The results also shown in percentage as follows Ignorance (75 per cent), women refused to pay the cost of vaccines (60 per cent), lack of knowledge (30 per cent). The prevalence of Newcastle diseases mentioned by women had its peak during the dry season from August to September each year. The following findings were collected from 3 veterinary officers on the challenges on distributions, preservations and supply of Newcastle vaccines in rural area.

Findings on Vaccination program of Newcastle diseases showed that some women lacked awareness on vaccination program, some refused to pay the cost of vaccines and others lacked knowledge on vaccination. These findings are comparable with those from Pakistan where most of farmers vaccinate their flock at the time of diseases onset this indicates that there is lack of knowledge of when to vaccinate (Farooq, *et al* 2002). For Newcastle disease prevention and control, chickens should be vaccinated before the onset of disease.

Response on view's of Veterinary officers on Newcastle vaccines distributions, supply and preservations

Challenges identified by veterinary officers on Newcastle vaccines distributions and preservations are long distance from veterinary clinics to farmers ,difficulty to lock chicken inside during the vaccination campaigns, lack of funds and transport ,farmers blaming on vaccine as a killer, no good organization at community level ,others miss vaccinations, poor knowledge, ocular problems, Poor infrastructure, receiving wrong figures on the numbers of chicken to be vaccinated, Fear of chickens to be stolen while their vaccinated, poor

communication between vaccine suppliers and extension staff, difficulties in accessing farmer due to the distance and impassible of roads during the rainy season.

On aspect of preservations/supply of Newcastle vaccines, veterinarians face it as a cumbersome job during the supply of vaccines. There are difficulties to supply because of the long distance between town and village or long distances from stores (vaccines) to vaccination villages. This poses difficulty in maintaining cold chains.

On the aspect of effectiveness of the vaccines, vaccines give positive result although sometimes farmers complain on high mortality rate after vaccinations. Most of farmers believe in the vaccines supplied to them but need stakeholder participation for positive results during the vaccinations campaigns .

On aspect of perception on Newcastle vaccines from farmers ,views from veterinarians shows that most of the famers believe on effectiveness of the vaccines ,but they prefer free cost of vaccines, only few famers complain on eyes problems for their chicken after vaccination.

Findings from veterinary officer shows that distributions of the vaccines and supply to rural areas are faced by many challenges. The challenges mentioned were long distance from the veterinary clinics, difficulties in keeping chicken inside for easier vaccination, famers ignorance on Newcastle vaccines, blaming the vaccine as the one killing their chicken's as well as causing ocular problem, poor organization at community level during the vaccination campaigns. Other studies in Senegal have shown similar findings that difficulties to organize vaccinations campaigns are due to scattered flocks over vast area (Guèye, 2002). More attention is needed in rural settings like improving the infrastructure especially during the rainy season in order to minimize the veterinary officer's difficulties during transportation of vaccines to the villages.

Experience of the women in local chicken production

During the individual interviews, the questions on the experience and competence of the women in local chicken production showed that most of the women have an experience on keeping chicken for more than 5 years (n =60; 81.1%). The remaining percentage (n = 14; 18.9%) was shared by women who have been involved in this activity for less than 5 years. During the scarcity time of feeds for chickens most women decided to sell their chicken with the aim of reducing size of the flock 57 respondent (77 percent), women who conserve their feeds to be used during the scarcity time were 6 (8.1 percent), women who bought feeds are 10 (13.5 per cent) and only 1.4 per cent depend on the other alternative.

Table 5.9 Response of women on experience in local chicken production

Source	**Frequency**	**Percentage**
Above 5 year	60	81.1
Below or equal 5	14	18.9
Total	**74**	**100**

Source: Field results,2010

The above table shows that most women had an experience of more than 5 years 81.1% (see table 5.9).also during that interviews most of the women reduce the size of the flock by 77 % during time of feed shortage (see Table 5.10) .

Table 5.10 Response of women on coping strategies on feed scarcity in local chicken production

Strategy	Frequency	Percentage
Buy	10	13.5
Conserve	6	8.1
Reduce size of herd	57	77.0
Other	1	1.4
Total	**74**	**100**

Source: Field results, 2010.

Treatment of the Diseases

The results from interviews and focus group discussions showed the treatment of the diseases in selected village was mainly done by the researcher from Sokoine University of Agriculture and Public services. The results showed that women who used their own experience to treat diseases or to vaccinate their chickens are only 18 (24.3 percent), Women who use researcher services from Sokoine University of Agriculture for treatment of diseases were 28 (37.8 percent) and from public extension services were 28 (37.8 per cent) The outcomes of the vaccination and treatment of diseases showed that 53 respondents had their chickens die (71.6 percent) and 21 respondents had their chickens survive (28.4 per cent). The findings also showed that few women depended on using traditional medicine like sisal leaves, ”katani” leaves and chili - pepper and other herbs for treatment of the Newcastle diseases. Among the producesr, only 3 respondents (4.1%) were using traditional medicine whereas the remaining 71 respondents (95.9%) depended on modern medicine and vaccines produced by different companies.

Table 5.11 Response on person responsible for treatment of Diseases

Source	Frequency	Percentage
Own experience	18	24.3
Researcher	28	37.8
Extensionist	28	37.8
Total	**74**	**100**

Source: Field results, 2010.

The table shows that most of women depend on researchers and extension workers to treat their chicken. (See Table 5.11) while on the response of outcomes after treatment, results show that most of the chicken died 71.6% (see table5.12). During the same the interviews, results revealed that few women uses traditional medicine (see table 5.13)**.**

Table 5.12 Response of women on the outcomes of diseases treated

Outcome	Frequency	Percentage
Chicken recovered	21	28.4
Chicken died	53	71.6
Total	**74**	**100**

Source: Field results, 2010.

Table 5.13 Response of women on use of traditional medicine

Uses of traditional medicine	Frequency	Percentage
Yes	3	4.1
No	71	95.9
Total	**74**	**100**

Source: Field results, 2010.

In this study it was observed that the frequent interaction between farmers, researchers and extension services was very low (Table 5.6). Frequent communication between farmers, extension workers and researchers is essential if worthwhile improvement in local chicken production is required. It has been reported that in Tanzania there are few workers in extension services who are competent to advice farmers and even when they are available their interaction with researchers through seminars, workshops and conferences has been minimal (NALERP 2004).This is supported with the findings from this study where extension farmers ratio per number of famers from each village range from 400- 1800. This is a big number for one extension worker to be able to practice all extension methods and effectively deliver information to the farmers. This is worse during the preparation of land for planting season and livestock activities happening at the same times. During the individual interviews with extension staff the following challenges were mentioned by them. There is inability to make mechanical maintenance needed for bicycles and motor bikes which have been provided by the Ministry of Agriculture as means of transport, No frequent meetings with the supervisors to present their difficulties faced during the field work, low number of trainings / refresher courses on local chicken production. All three extension workers interviewed have less time to visit their farmers due to high number of farmers per extension worker. The findings show that farmers too depend on their own experience on treatment diseases. Agriculture extension services are aimed at helping the farmers to learn new ways of generating income through alternative enterprises, improved marketing strategies and management skills to improve productivity and also through resources management, controlling livestock production practices. In another study, its shown that only a few farmers (27.9%) who had access to veterinary service responded differently in times of disease occurrence (Swai *et al*,2007).

Another finding showed that extension methods practiced by extension workers are group methods, meetings and visiting but this is done only once per month. But other methods like individual contact method are not practiced by them due to higher number of farmers per given staff, this is big disadvantage to farmers because the individual method provides opportunities for face to face or person to person contact between the rural farmer and extension services, this methods are very effective in teaching new skills like record keeping which is missing from this study, easy to make follow up and to know the progress. Other studies also show less extension services and technical assistance during disease occurrence in rural humid coastal belt Tanga,Tanzania (Swai *et al*,2007).

In this study it was observed that the researchers have established direct contact with livestock keepers who receive advice from them. However these researchers have been frustrated by lack of funds and transport once the project is over. In addition only a small number of farmers benefit from these services. Under current circumstances of poverty in rural areas, extension services to smallholder livestock keepers need to be supported and schemes for extension sustainability need to be promoted. This can be done by increasing the number of staff with adequate training, improvement in communication between research, extension and the farmers through seminars, inter- institutional exchange and visits. In addition, addressing factors which prevent effectiveness of extension services like lack of transport and other materials.

5.4 Marketing

During the focus group discussion most of the women, who sold their chickens within their village, indicated that marketing was one of the factors contributing to the low local chicken production. This was attributed to cost of transport to high chicken demand areas where the price is higher compared to the low price proposed by middlemen. In addition to that, lack of training on market knowledge and seasonal variation of price. Furthermore, chicken in most cases were sold based on pressing need. The main marketing routes were from farmers to farmers, or from farmer to retailer or middlemen. However, in few cases some farmers took

their chicken to nearby primary markets or directly to nearby restaurants. Most of the farmers then complained about the price of chicken being too low as shown in Table 5.6 from focus group 1and 2. Results from individual interview show that marketing process was done by both gender 55 %, male only 35.1% and female only 9.5% as shown in table 5.16

Table 5.14 Women's views on factors that hinder Marketing process in local chicken production in Sangasanga village

Factors	Respondent frequency			
	Yes	Percentage	No	Percentage
Low price	12	60	8	40
Cost of transport is high	16	80	4	20
No training on marketing	8	40	12	60
Season variations of price	5	25	15	75

Source: Field results, 2010.

The Table above shows that 80% of the respondents consider the cost of transport to be so high compared to other factors such as low price, lack of training and season variations of price. (See Table 5.14).

Discussion with the first group revealed that 60% of women indicate low price of chicken as one of the constrains compared to the other factors (see Table 5.15).

Table 5.15 Women's views on factor that hinder Marketing process in local chicken production in Changarawe village

Factors	Respondent frequency			
	Yes	Percentage	No	Percentage
Low price	12	60	8	40
Cost of transport is high	11	55	9	45
No training on marketing	9	45	11	55
Season variations of price	7	35	13	65

Source: Field results, 2010.

In marketing process both female and male adult members participate 55.4 %. (see Table 5.16)

Table 5.16 Women response on marketing process in Sangasanga and Changarawe village

Person responsible	Frequency	Percentage
Female adult	7	9.5
Male adult	26	35.1
Both	41	55.4
Total	74	100.0

Source: Field results,2010

Marketing was mentioned as a major constraint in both individual interviews and focus group discussions in local chicken production. Findings from Focus group discussions shows that 80% of the respondents fail to sell their chicken product due to greater distance to demanding areas where the price is higher, other 60% mention low prices due to middlemen, 40% state lack of training on marketing knowledge and remaining 25% facing

difficulties due to seasonal variation of prices. These factors faced by rural women local chicken producers on marketing is partly due to low incomes to afford the cost of transport, poor market organization to help the rural women to sell their chickens and also the bargaining power is low to compete with the middlemen. During the outbreak of Newcastle disease, women decide to sell their chickens with low prices with the fear of losing their chickens .The results collected on the marketing ownership shows decision making is from husbands. The suggestion from this study is that marketing in local chicken production needs institutional and organizational support, women can create farmers group and organize marketing as a group to get a good price and to find possibilities of sending their chicken to the markets where the price is higher. Women make a good timing of selling their chickens particularly like when the schools open parents sell their chickens to get school fees, during plating season when many farmers' need money to buy seeds, fertilizer and for religious ceremonies. This is also supported by Tadelle *et al*. (2003) in Ethiopia and Mlozi *et al.* (2003) in Tanzania. Another findings from this studies show that returns from local chickens are benefited by middlemen through buying chicken at low prices and their husbands through having a power on money collected.

In conclusion, from the factors mentioned, it's clear that there is no market, institutional and organizational support to help the famers on marketing processes. Institutions can help women to find possibilities of sending their chicken to the markets place where the price is higher. Other studies in Ethiopia and Tanzania report on, season variations of price due to disease outbreak during dry-cool season and high slaughtering for socio-religious festivals, Tadelle *et al*. (2003) in Ethiopia and Mlozi *et al.* (2003) in Tanzania. Findings from this study on marketing process show that it's being done by both gender 55.4%, followed by 35.1% male adults and 9.5% female adults. From the focus group discussions, it is shown that both members in households participate in marketing process of mainly selling, but the decision making on income collected is done by men.

CHAPTER SIX : CONCLUSION AND RECOMMENDATION

6.1 Conclusion

The factors contributing in the low local chickens production are disease, marketing process and ineffectiveness of the extension services. During the focusing group discussion and individual interviews diseases mentioned are Newcastle, typhoid, worms, depressed chickens and swollen eyes. Newcastle diseases was a major constraint in local chicken production which cause high mortality rate. Despite the control measures implemented with researchers and extension workers, women local chickens producer refuse to pay cost of the vaccines and sometimes decide not to vaccinate their chickens for fear of losing their chickens, other they believe that vaccines cause eye problems which is not true. Poor response during the vaccination programme is due to ignorance of women local chicken producer on Newcastle vaccines.

Most women local chicken producer received less extension services from extensions officers, this is because of the low number of the extension workers per given village. This study shows that extension workers visited their farmers once per month. The only extension methods practiced is group methods and meetings, other methods like individual contact method is missing and this cause women to have low knowledge on local chickens production, researcher has been help them for the long time but this depending to the funds provided by the project aimed to a certain research area when the funds finish everything stops. this also makes the farmers to rely on the free things that is why ,they refuse to pay the cost of the vaccines for hoping of another project will come to vaccinate their chickens for free.

Marketing process among of women local chicken producer was mentioned as a hindering factor where by women failed to send their chicken to high demanding area where the price is high due to high transport cost, low price proposed by middlemen, lack of training on market knowledge and seasonal variation of price. Decision making on marketing process is mainly done by both member of the households ,although decision making on households income from chickens products done by men. Women were involved in decision concerning chicken production management such as feeding, cleaning, selling. Children owned a number of chicken with less authority on selling them.

6. 2 Recommendations

The following recommendations is proposed for improving local chicken production in Sangasanga and Changarawe villages for improving livelihood income and food.

- Ministry of Agriculture and local Government should look at the possibilities of increasing the number of extension staff per given village ,for increasing the efficiency of the extension service delivery to farmers. Rural women local chicken producers should be exposed to appropriate training courses and equipped with knowledge and information on the general husbandry practices, housing management, feeding, marketing strategies and diseases for improving household livelihood through income and food.
- Government should continue to support women local chicken producer by providing subsidized vaccinations and technical support.
- Local government should be able to organize workshops or meetings for all stakeholders in local chicken production in communities and also organize vaccination campaigns in order to achieve positive results.
- Newcastle vaccines producers and distributors should make a follow up at village level to revaluate the effectiveness of vaccines they deliver.

- Women local chicken producers should form marketing groups to increase their bargaining power, and easiness to transport chickens as a group rather than one woman to transport one or two chicken. However this cannot be achieved without improving the health and productivity. Routine vaccination program against Newcastle disease should put into consideration.

REFERENCE

Abubakar, M. B. ,Ambali, A. G and Tamjdo.T (2007) Rural chicken prodcution:Effects of Gender on ownership, and Management Responsibilities in Some Parts of Nigeria and Cameroon International ;Journal of Poultry Science 6 (6): 413-416

Alders, R.G. (1997). Women and village poultry: an old tradition returns to the fore. *African Network for Rural Poultry. Newsletter*, 7(1): 5–6.

Alders, R.G., Bagnol, B., Harun, M., Msami, H., Sprowles, L.J., and Young, M.P. **(2005a**). The impact of Newcastle disease control in village chickens using I-2 thermotolerant vaccine in rural areas of Dodoma and Mtwara Regions, Tanzania. 12-15 September 2005. Howick, South Africa

Anonymous (2002b) Diagnostic Participatory Rural Appraisal report for smallholder poultry keepers in Mkinga and Maramba Divisions, Muheza, Tanga, Tanzania, EZCORE internal report, July 2002

Boki J. Kibari. (2000.) Poultry Industry in Tanzania – With Emphasis on Small-Scale Rural Poultry. In: Gurm Pedersen, Anders Permin and Uswege M. Minga (eds). Possibilities for Smallholder Poultry Projects in Eastern and Southern Africa. Network for Small Holder Poultry Development. Copenhagen: The Royal Veterinary and Agricultural University.

Bradley, F.A. (1992). A historical review of women's contributions to poultry production and the implications for poultry development processes. In Proceedings, 19th World Poultry Congress, Amsterdam, the Netherlands, 20-24 September 1992, p. 693–696.

Branckaert, R .D. S and Guèye E F (1999)FAO's programme for support to family poultry production. In Poutyr as Tool in poverty Eradication and promotion of Gender Equality-Proceedings of a workshop.Accesed on 11/09/2010 : http://www.husdyr.kvl.dk/thm/php/tune99/24-Brankaertt htm

Branckaert, R .D.S. **(2007)** Avian influenza: the new challenge for family poultry. *World's Poultry Science Journal, Vol.* 2007;63:129–131. doi: 10.1017/S0043933907001341.

Carney, D. (1998). Sustainable rural livelihoods: what contribution can we make? London, Department for International Development

Chambers, R. (1987) 'Sustainable livelihoods, environment and development: Putting **poor** rural people first'**. IDS Discussion Paper. No. 240. Brighton: IDS**

Chambers R. and G. Conway (1992). Sustainable rural livelihoods: practical for the 21st Century,' *IDS Discussion Paper No. 296*. Brighton: Institute of Development Studies.

Chambers, R (1989), Editorial Introduction: Vulnerability, Coping and Policy. IDS Discussion Paper No. 311; Brighton, Institute of Development Studies

DFID (1999), Sustainable Livelihoods Guidance Sheets 1-4. DFID, London

Ellis, F. **(2000).** Rural Livelihoods and Diversity in Developing Countries, Oxford, Oxford University Press

FAO. **(1993).** People's participation programmes in rural development through promotion of self-help organizations. Terminal report, project GCP/ZIM/066/lTA. Rome.

FAO (1993). Agricultural extension and farm women in the 1980s. Rome: FAO.

Farouq,M ., Gul,N ,Chand,N, Durrani,F.R., Ahmed.J., Asghar.A and Zhir -un-Din (2002) Production performance of backyard chicken under the care of women in Charsadda,

Gondwe T N, Wollny C B A and Kaumbata W (2003): Marketing system and channels for scavenging local chickens in Lilongwe, Malawi. *Livestock Research for Rural Development. Vol. 17, Art. #24.* Retrieved September 11, 2010, from http://www.lrrd.org/lrrd17/3/gond17024.htm

Goromelo,H.M (2009) Feeding and management strategies for rural poultry production in central Tanzania..PHD Thesis, Wageningen University,April /28 / 2009

Guèye, E. F (2002) Newcastle disease in family poultry: prospects for its control through ethnoveterinary medicine; Paper presented at the 27th World Veterinary Congress, 25-29 September 2002, Tunis, Tunisia.

Jones, B. (2008) Tanzania Rapid Assessment Report, Early Detection, Reporting and Surveillance – Avian Influenza in Africa International Livestock Research Institute (ILRI), Nairobi ,September.

Kitalyi, A.J., (1998) Village chicken production systems in rural Africa. Household food security and gender issues. Food and Agriculture Organisation of United Nations Paper 142

Kugonza D R, Kyarisiima C C and Iisa A(2008): Indigenous chicken flocks of Eastern Uganda: I. Productivity, management and strategies for better performance. *Volume 20, Article #137.* Retrieved September 12, 2010, from http://www.lrrd.org/lrrd20/9/kugo20137.htm

Kusina J F and Kusina N T (1999) Feasibility study of agricultural and household activities as they relate to livestock production in Guruve District of Mashonaland Central Province with emphasis on poultry production. Household Agricultural Support Program Report, Harare, Zimbabwe

Leeuwis, C. (2004) Communication for rural innovation: Rethinking Agricultural . Extension, Third Edition, Blackwell Science, UK

MAC (Ministry of Agriculture and Cooperatives)., **(2000).** The Need for Agricultural Extension Reform in Tanzania: Vol. I: Review of Literature. MAC-Extension Facilitation Unit, Dar es Salaam

Mashatise, E. (2002) A survey of pig production in a smallholder farming area of Zimbabwe and the influence of maize cob-based diets on blood metabolites and puberty in Mukota and Mukota x Landrace gilts; M.Sc. Thesis, University of Zimbabwe, Harare, Zimbabwe.

Mattee, A.Z. & D.F. Rutatora., (2000). Assessment of Performance of Past and Current Agricultural Extension Providers in Tanzania. A Consultancy Report submitted to the Ministry of Agriculture and Cooperatives, Dar es Salaam

Minga UM, Yongolo MGS, Mtambo MMA, Mutayoba S, Lawrence P, Mwalusanya NA, Katule AM Mlozi MRS (2000). The Potential for Rural

PoultryProduction and Health in Africa. Proc. of the workshop on the Possibilities for Smallholder Poultry Projects in Eastern and Southern Africa, Morogoro, Tanzania

Minga, U.M. Mtambo, A.M.M., Katule, A.M., Mutayoba, S.K., Mwalusanya, N.A., Lawrence, P., Mdegela, R.H. and Olsen, J.E. (**2001).** Improving the health and productivity of the rural chicken in Africa: Research and Development efforts in Tanzania. Proc. Of the SADC planning workshop on Newcastle disease in village chickens, an International Workshop. Maputo, Mozambique 6 – 9 March, 2000. ACIAR Proceedings No. 113 pp. 134 – 139.

Ministry of Agriculture and food security (2006) Tanzania

Msami ,H (2007) The structure and importance of the commercial and village base poultry system in Tanzania,FAO

Msami H.M. (2000) Studies on the Structure and Problems of Family Poultry Production in Tanzania, Sokoine University of Agriculture, Morogoro, Tanzania , from 4 to 8 September, 2000 in Morogoro Tanzania

Msoffe P.LM, Minga. M M A.Gwakisa,P.S R.H Mdegela and J.E Olsen.(2002) Productivity and Natural disease Resistance Pontetial of Free-ranging Local Chicken Ecotype in Tanzania Livestock Research for Rural Development 14 (3)
Morogoro Regional Commissioners Office, 2006.,The planning commission,Tanzania.

Muchadeyi F C, Sibanda S, Kusina N T, Kusina J and Makuza S (2004) The village chicken production system in Rushinga District of Zimbabwe. Livestock Research for Rural Development 16(6). Available at: http://www .cipav.org.co/lrrd16/6/much 16040.htm(accessed 20/06/2010).

Mwalusanya NA, Katule AM, Mutayoba SK, Mtambo MM, Olsen JE, Minga UM.(**2001)**Productivity of local chicken under village management conditions.Trop Animal Health Prod.2002 Sept;34 (34);405-16

Mwalusanya NA, Katule AM, Mutayoba SK, Mtambo MM, Olsen JE, Minga UM. Productivity of local chickens under village management conditions.Trop Anim Health Prod. **(2002)** Sep;34 (5):405-16.

Mvomero District council., (2008). *Socio economic profile. Morogoro*. Tanzania
Ormrod, J

Mzinga, J., (2002). Changing gender roles in Tanzania. Sexual Health Exchange, 4:3-5 **http://.kit.nl/ils/exchange content/assets/images/Exchange 200-4,Acceseed 7/09/2010.**

National Agricultural and livestock extension rehabilitation (2004) project (NALERP): Project Performance Evaluation Report (PPER) Operation Evaluation Department (Oper) 19July 2004

Nwagu, B.I. (**2002)** Production and Management of Indigenous Poultry Species. A Training Manual in National Training Workshop on Poultry Production in Nigerian National Animal Production Research Institute, Shika, Zaria. 10 – 26pp.

Olawoye, J. E. (1989a). Difficulties for rural women in securing resources for agricultural production: Two case studies from Oyo State, Nigeria. *Rural Development in Nigeria, 3* (*2*), 77'-81.

Sahn, D. E. and Younger, D.S (2009) .Measuring Intra-Household inequality: Explorations using the body mass index. *Presented at the WIDER Conference on Advancing Health Equity, Helsinki, Finland, September 29-30, 2006, and the CIRPÉE Conference on Health Economics, University Laval, March 30, 2007*
In *Health Economics* 18(S1): S13-S36, April, 2009 (UNU-WIDER Special Issue on Health and Development

Scola, E. (1992). The role of Ugandan women in poultry production. In *Proceedings, 19th World Poultry Congress*, Amsterdam, the Netherlands, 20–24 September 1992, p. 701–705

Samanta, R. K. **(1994).** They reap less than they sow. The Hindu (April), No.7 Madras: India

Sonaiya,E.B and S.E.J.Swan (2004). Small scale poultry in Nigeria,Acessed on 11/9/2010 http://www.fao.org/docrep/008/y5169e/y5169e00.htm

Swai, E. S., Karimuribo, E. D., Kyakaisho, P. F., and Mtui, P. F. **(2007).** Free-range village chickens on the humid coastal belt of Tanga, Tanzania: their roles, husbandry and health status. *Livestock Research for Rural Development. Volume 19, Article #104.* Retrieved Sept 1, 2010, from http://www.lrrd.org/lrrd19/8/swai19104.htm

Snyder, M. (1990). Women: The key to ending hunger. The Hunger Project Papers No. 8.

Tadelle D, Million T, Alemu Y and Peters K J (2003) Village chicken production systems inEthiopia:1.Flockcharacteristic and performance., http://www.lrrd.org/lrrd15/1/tadea151.htm

Van den Ban,A.W& H.S.Hawkins (1996) Agrocultural Extesion,2nd edn.Blackwell Science,Oxford.

ANNEXES

Annex 1.Checklist questions for extension staff

1. What are the challenges or constraints do you meets in local chickens productions? What ways are you using to solve the challenges or constraints when you' are dealing with women local chickens producer?

2. How do the farmers perceive Newcastle diseases, what strategies do you use as extension staff to help them to understand the diseases different the way they thinking?

3. Do you visiting farmer? If yes how many time per week or month, per year? if no why? Which method are using when visiting famers, and how number of farmers do you in your station? Do you get any training or seminar or workshop related to your professional ,extension services? If yes how frequently? if no why?

Annex 2.Checklist questions for veterinary officer

1. What are the challenges or constraints do you meet in preservations the distributions and supply of the New castle vaccines in rural area? What are the strategies do you have to solve that challenges? Does your organization gives you any help in planning and implementing those strategies? If yes how? If no why? In what ways does farmers get Newcastle vaccine?

2. Do you get feedback from famers concerning the vaccines supplied to them? if yes how? How are going to solve any complaints about the effectiveness of the vaccine supplied?

Annex 3 Checklist questions for women local chicken producers

1. What are factors contributing in low production in local chicken production? Which is the leading factors in local chicken productions? What are other factors affect local chicken production?

Annex 4 Questioner

QUESTIONNAIRE FOR FIELD SURVEY
SECTION ONE: FOOD SECURITY
A: BACKGROUND INFORMATION

1. Name of interviewer……..……..
2. Date of interview……..
3. Name of respondent……..
4. Name of village……

Identification variables

Item	Code
Questionnaire Number	
Village Number	
Ward	
Division	
District	

B: Household Characteristics

Respondent	Gender	Age	Marital status	Education level	Main occupation	Relationship to household head	House hold head	Total member in household

Code: Gender 1=Male 2, =Female
Marital status 1=Married,2 = Single, 3=Widowed, = 4 Divorced
Main occupation 1= No occupation, 2=Farmer, 3=others; specify
Relationship to household head: 1=Husband, 2=wife, 3daughter, 4=Son, 5=Relative 6=Non relative
Total members in households
Educational level 1= no formal,2 = Primary, 3=Secondary,4=College, 5=Adult education, 6= other (specify)

C: Overview of Household Resources

Ownership by Gender			
Resource	**Male**	**Female**	**Both**
Land (acres)			
Livestock			
-Cattle (cows, etc)			
-sheep			
-Goats			
-Donkeys			
-Pigs			
-Chicken			
-Other (specify)			
Assets			
Tractor			
Bicycle			
Ox-ploughs			
Ox-carts			
Sprayers			
Hand –hoes			
Machetes			
Sickles			
Other (specify)			

D: Sources of Income

Source	Amount (Tsh/Year)		
	Male	Female	Both Male & Female
Crop sale (name the copy)			
Livestock Sales (name the livestock/product sold)			
Other sources of income			
Local brew			
Casual Labor			
Formal employment			
Remittances			
Other (specify)			

E: Expenditure

Item	**Amount (Tshs/Year)**		
	Male	**Female**	**Both Male& Female**
Food purchase			
1.			
2.			
3.			
4.			
Livestock purchase			
1.			
2.			
3.			
4.			
Non Food			
Medicine			
Education			
Clothes			
Levies			
Beer and refreshments			
Fertilizers			
Pesticides			
Seeds (improved/Local)			
Others (specify e.g. hoes)			

F: Division of Labour

Activity	**Wet Season (days/month)**					
	Months……..			**Months…….**		
	Male	**Female**	**Both**	**Male**	**Female**	**Both**
Production						
-Land preparation						
- Planting						
- Weeding						
- Harvesting						
- Processing						
- Marketing						
- Collecting forage						
- Herding						

-Milking						
-Other production activities (specify)						
Reproduction						
-Cooking						
-Fetching fuel						
-Fetching water						
-Child care						
-House keeping						
-Other reproduction Activities (specify)						

1 = Female adult
2 = Male adult
3 = Female child
4 = Male child

SECTION TWO

A: HOUSEHOLD HOLDING

1: Land Holding in Acres

Homestead	Crop Land	Improved pasture	Natural Pasture	Other (specify)	Total

2. Type of Crops Grown and Expected Yield this Season

Type of Crop	Area Grown (Acres)	Yield (Bags)

3. Type of Livestock Kept by the Farmers

Livestock	**Number**	**Ownership**		
		Male	**Female**	**Both**
1. Chicken				
2. Cattle				
3. Goats				
4. Sheep				

5. Pigs				
6. Ducks				
7. Pigeons				
8. Guinea fowls				
9. Others				

4 Number of Chicken by Category

Category	**Local Chicken**	**Improved chicken**
Chicks		
Grower		
Layers		
Cocks		

B: CHICKEN MANAGEMENT

1. For low long have you been keeping chicken?

(1=<5, 2=≥)

2. Do you keep records on chicken production? (1=Yes 2=No,)

3. If yes which type? Specify 1…….2…….
3……4……..5……

4. Activity profile on local chicken production and time spent by gender

Activity	**Responsible Person***	**Time spend (hours)**
1. Feeding		
2. Cleaning		
3. Egg and chicken marketing		

1= Husband 2=wife= Children 4= other specify……

5. Seasonal Feed Variation

Type of Feed	**Period**			
	1-JanMarch	**2=April-June**	**3-July-Sept**	**4=Oct-Dec**
1. Scavenging				
2.Concetrates				
3. Both (1&2 above)				

6. What are the coping strategies during feed shortage?

1= Buy conserved feeds (Concentrates etc)
2= Conserved feeds from my store

3= Move chicken to other places
4= Reduce the size of the herd
5= Other: Specify……

D: HEALTH INFORMATION

1. Do you know diseases, which affect chickens in your village?

1. Yes, 2 No.

2. Incidences of diseases by Category for the past One Year

Category	**Fall Sick***	**Type of Disease****	**Who treated*****	**Out Come*****
Chicks				
Grower				
Layer				

* 1=Yes, 2=No
** 1= Newcastle, 2= Typhoid, 3=Worms 4= Depressed chicks, 5 Swollen eyes for chicks = , Other : Specify……..
*** 1 Own treatment, 2 = Extension, 3= Researcher, 4= others. Specify
**** 1 = recovered, 2=Died

3. Chicken Transaction for Last Year (January-December)

Category	Acquisition Types*		Disposal Types**	
	Local Chicken	Improved Chicken	Local Chicken	Improved chicken
Chicks				
Grower				
Layers				
Cocks				

- 1=purchase,2=gift, 3 = others, specify……

** 1 Sell, 2= home consumption, 3= gift 4= Theft, 5= other, Specify)……

4. **Seasonal Variation of Disease Incidence**

Prevalence	**Period**			
	Jan-March	**April-June**	**July-Sept**	**Oct-Dec.**
1 Highest				
2. High				
3. Low				

4 Do you use traditional medicine for treatment/control of diseases in your farm?
1= Yes, 2 = No

5. If yes, for which disease (s) (1= Newcastle diseases, 2= Typhoid, 3= Worms, 4 Depressed chicks. 5. Swollen eyes for chicks, 6 = others: Specify…….

E: EXTENSION SERVICES

1. **Do you get extension service? (1 = Yes 2 = No)**
2. **If Yes, how often?**

   1= One per month 2 = Once every six months 3= Once per year 4= Never
3. **Sources and Quality of Information Services on chicken Production**

Type of Service	Source of Service*	Charge (Yes=1 No=2)	Request (Yes 1=No =2)	Satisfaction (Yes 1=No =2)
1. Disease Control				
2. Treatment				
3. Husbandry management				
4. Feed				
5. Housing				
6. Marketing				

- 1 = Researcher , 2= Extension 3= Own Experience, 4 = others. Specify……**…….**

Annex 5 : Field result used for analysis

Newcastle diseases

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	14	18.9	18.9	18.9
	YES	60	81.1	81.1	100.0
	Total	74	100.0	100.0	

Salmonellosis diseases

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NO	50	67.6	67.6	67.6
	YES	24	32.4	32.4	100.0
	Total	74	100.0	100.0	

Worms conditions

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NO	65	87.8	87.8	87.8
	YES	9	12.2	12.2	100.0
	Total	74	100.0	100.0	

Depressed chicken diseases

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NO	71	95.9	95.9	95.9
	YES	3	4.1	4.1	100.0
	Total	74	100.0	100.0	

Swollen eyes diseases

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NO	50	67.6	67.6	67.6
	YES	24	32.4	32.4	100.0
	Total	74	100.0	100.0	

Others diseases

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NO	67	90.5	90.5	90.5
	YES	7	9.5	9.5	100.0
	Total	74	100.0	100.0	

Educational level

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	= No formal	2	2.7	2.7	2.7
	=Primary	60	81.1	81.1	83.8
	=Secondary	9	12.2	12.2	95.9
	= College	3	4.1	4.1	100.0
	Total	74	100.0	100.0	

Househead

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	= Husbands	41	55.4	55.4	55.4
	=Single	22	29.7	29.7	85.1
	= Widowed	11	14.9	14.9	100.0
	Total	74	100.0	100.0	

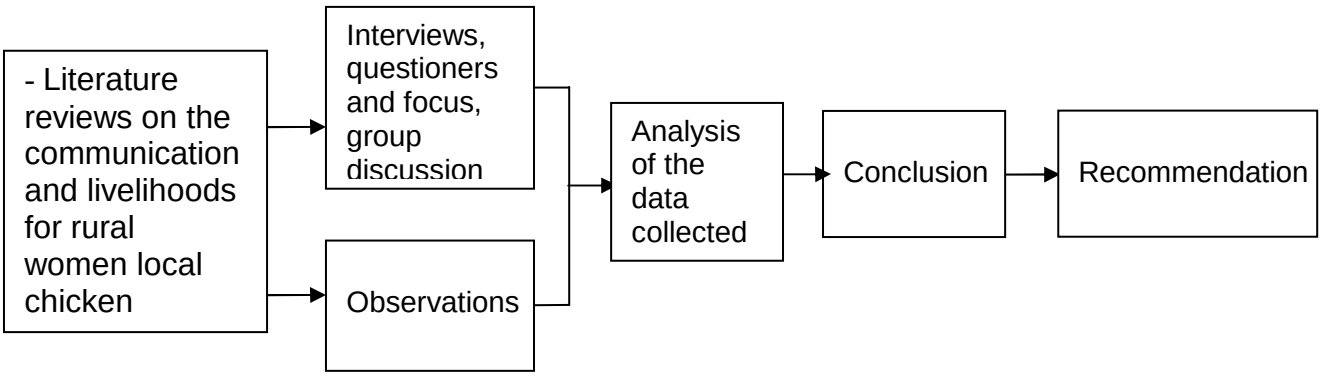
Annex 5 Resources in Changarawe village

Village	Land (acres)	Cattle	Goats	Pigs	Chicken	Ducks
Changarawe	2.5	0	0	0	33	0
Changarawe	1.25	0	0	0	11	8
Changarawe	1.25	0	0	0	6	0
Changarawe	15.5	0	4	0	10	0
Changarawe	3.5	0	0	0	19	0
Changarawe	2.5	0	0	0	19	0
Changarawe	2.5	0	0	0	17	0
Changarawe	3.5	0	0	0	19	0
Changarawe	0	0	0	0	5	0
Changarawe	4.25	0	2	2	8	4
Changarawe	1.25	0	0	1	6	2
Changarawe	7.25	0	0	0	7	0
Changarawe	1.5	0	0	15	15	13
Changarawe	15	0	8	12	31	9
Changarawe	3	0	0	0	14	7
Changarawe	0.5	0	0	0	39	1
Changarawe	0	0	0	0	22	0
Changarawe	5.5	0	0	0	17	0
Changarawe	20.5	0	40	0	19	10
Changarawe	7.5	0	4	6	16	0
Changarawe	4	0	8	1	12	5
Changarawe	2.5	0	4	8	16	0
Changarawe	6.25	0	0	0	33	0
Changarawe	26	1	0	0	63	0
Changarawe	10.5	0	2	0	33	0
Changarawe	1.25	0	0	4	16	22
Changarawe	2	0	0	0	11	0
Changarawe	2.5	0	0	0	23	0
Changarawe	3.5	0	5	2	17	6
Changarawe	3.75	0	6	8	32	4
Changarawe	3.75	0	6	6	11	14
Changarawe	3.5	0	0	0	18	8
Total	**168.25**	**1**	**89**	**65**	**618**	**113**

Resources in Sangasanga village

Village	Land (acres)	Cattle	Goats	Pigs	Chicken	Ducks
Sangasanga	2	0	3	9	9	0
Sangasanga	2	0	0	1	15	0
Sangasanga	4.5	0	0	3	10	13
Sangasanga	0.5	0	0	0	18	0
Sangasanga	2	0	0	0	3	0
Sangasanga	2	0	0	0	18	0
Sangasanga	3	0	0	0	15	13
Sangasanga	2.5	0	0	0	27	0
Sangasanga	3	0	0	0	8	0
Sangasanga	1	0	3	0	10	0
Sangasanga	2	0	0	0	56	0
Sangasanga	1	0	0	2	30	13
Sangasanga	2	0	0	0	4	3
Sangasanga	3.5	0	0	0	17	0
Sangasanga	1	0	0	0	11	0
Sangasanga	2	0	0	0	19	0
Sangasanga	10	0	0	0	37	0
Sangasanga	2	0	0	0	13	0
Sangasanga	1	0	0	0	6	0
Sangasanga	13	0	11	0	10	0
Sangasanga	2	0	0	0	16	0
Sangasanga	1.5	0	0	0	13	0
Sangasanga	5.75	0	0	0	17	6
Sangasanga	3	0	0	0	4	0
Sangasanga	4	0	0	0	13	0
Sangasanga	8.5	0	0	0	23	0
Sangasanga	3.25	0	0	0	13	7
Sangasanga	1.25	0	0	0	5	0
Sangasanga	1.5	0	0	0	13	0
Sangasanga	0	0	0	0	38	0
Sangasanga	0	0	0	0	5	0
Sangasanga	2.5	0	2	0	29	6
Sangasanga	1.25	0	0	0	14	0
angasanga	2.5	0	0	0	8	0
Sangasanga	1.25	0	0	0	7	0
Sangasanga	3.5	0	2	0	13	0
Sangasanga	4.5	0	0	0	32	0
Sangasanga	5.5	0	0	0	16	4
Sangasanga	5.5	0	0	0	5	0
Sangasanga	2.5	0	0	0	27	12
Sangasanga	2.5	0	0	0	7	0
Sangasanga	3.5	0	0	0	12	2
Total	125.75	0	21	15	666	79

Annex 6: Research frame work



Annex 7 :Activity profile

Harvard tools were used for examining men's and women's access to resources and control over their use. These tools showed who dealt with the production activities and reproduction activities in households.

Harvard Activity profile

Production activities	**Female adult**	**Fema-le child**	**Male adult**	**Male child**	**Both**	**Fre-que ncy**
Crops production						
1.Land preparation	13 (17.6%)	0	41 (55.4%)	0	20 (27%)	74
2.Planting	6 (8.1%)	0	11 (14.9)	0	57 (77%)	74
3.Weeding	9 (12.2%)	0	4 (5.4%)	1 (1.4%)	60 (81.1%)	74
4.Harvesting	5 (6.8%)	1 (1.4%)	6 (8.1%)	1 (1.4%)	61 (82.2%)	74
5. Processing	9 (12.2%)	0	6 (8.1%)	0	59 (79.7%)	74
6.Marketing	7 (9.5%)	0	26 (35.1%)	0	41 (55.4%)	74
7.Collecting forage	16 (21.6%)	2 (2.7%)	2 (2.7%)	3 (4.1%)	51 (68.9%)	74
Reproduction activities						
1.Cooking	67 (90.5%)	2 (2.7%)	2 (2.7%)	2 (2.7%)	3 (4.1%)	74
2.Fetching fire wood	55 (74.3%)	3 (4.1%)	5 (6.8%)	4 (5.4%)	7 (9.5%)	74
3.Fetching water	58 (78.4%)	8 (10.8 %)	0	2 (2.7%)	6 (8.1%)	74
4.Child care	69 (93.2%)	0	0	0	5 (6.8%)	74