

**ANIMAL HEALTH GOVERNANCE AND SERVICES:
A CASE OF PASTORALISTS IN NGORONGORO DISTRICT, TANZANIA**

LUTHER ZABLON KITANDU

**A DISSERTATION SUBMITTED IN A PATIAL FULFILMENT OF THE
REQUIREMENTS FOR THE DEGREE OF MASTER OF ARTS IN Rural
Development OF Sokoine University Of Agriculture. Morogoro, Tanzania.**

2013

ABSTRACT

While good governance has been on the development agenda, animal health governance issues have remained relatively neglected in the debate on animal health services. This has resulted in inadequate public and private sector investment in animal health services in pastoral remote areas. The study had three specific objectives: to assess animal health governance, to analyse animal health services, and to determine governance related factors affecting animal health services. The study was conducted in Ngorongoro District, Arusha Region, Tanzania. A cross-sectional research design was used in this study. A structured questionnaire with open and close-ended questions was administered. Purposive sampling procedure was used to select the district, three wards and three villages. A sample size of 125 respondents was drawn from three villages by using simple stratified sampling procedure. Data were analysed by the use of Statistical Package for Social Sciences (SPSS). Descriptive statistics were computed to assess animal health governance. Frequencies, percentages and cross-tabulation were used to analyse animal health services. The findings showed there was a weak chain of command within the animal health governance structure. The findings also revealed poor availability of animal health services in pastoral areas. Research findings showed significant association between governance and animal health services $\chi^2 = 6.085$ ($p < 0.05$). There was significant differences in the mortality of livestock where governance factors held differently (T-test = 50.230, $P < 0.05$). This study recommends a need to improve animal health governance, supportive institutional and legal frameworks in order to improve animal health services in pastoral areas.

DECLARATION

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

LUTHER ZABLON KITANDU
(MA Rural Development student)

Date

The above declaration is confirmed

Dr. Kim A. Kayunze
(Supervisor)

Date

COPYRIGHT

No part of this dissertation may be reproduced, stored in any retrieval system, or transmitted in any form or by any means without prior written permission of the author or Sokoine University of Agriculture on that behalf.

ACKNOWLEDGEMENTS

The preparation and accomplishment of this dissertation would not have been possible without the help of my wife Frida who spent much from her little earning to sponsor my studies. I am deeply appreciative of the patience and understanding of my family throughout the study period.

I am greatly indebted to my supervisor, Dr. Kim A. Kayunze for his enduring effort, tireless assistance, guidance, encouragement and constructive criticisms and ideas, which were extended early from the development of the proposal, data entry and analysis, and report writing.

I also extend my sincere thanks to the Development Studies Institute (DSI) management for offering this study.

Further appreciations go to all academic members of the Development Studies Institute (DSI) for their tireless efforts to guide and help they offered me during the study.

Many thanks to my colleagues for their cooperation and experiences we shared during our study.

Lastly but not the least, my thanks go to community leaders of Ngorongoro District especially those of Orgosorok, Digodigo and Enduleni wards for their assistance during data collection.

TABLE OF CONTENTS

ABSTRACT	ii
DECLARATION	iii
COPYRIGHT	iv
ACKNOWLEDGEMENTS	v
TABLE OF CONTENTS	vi
LIST OF TABLES	xi
LIST OF FIGURE	xii
LIST OF APPENDICES	xiii
LIST OF ABBREVIATION	xiv
CHAPTER ONE	1
1.0 INTRODUCTION	1
1.1 Background Information	1
1.2 Problem Statement	5
1.3 Justification of the Research	6
1.3 Objectives and Hypotheses	6
1.3.1 General objective	6
1.3.2 Specific objectives	7
1.3.3 Hypotheses	7
CHAPTER TWO	8
2.0 LITERATURE REVIEW	8
2.1 Governance	9
2.2 Animal Health Services	13

2.3	Structural Adjustment Programs.....	15
2.4	Reform Programme.....	17
2.5	Privatisation of Animal Health Services.....	18
2.6	Community Animal Health Workers (CAHWs).....	22
2.7	Theoretical Framework.....	23
2.7.1	Function.....	24
2.7.2	Benefits of the stakeholders' theory.....	24
2.7.3	Problems of the stakeholder theory.....	25
2.8	The Conceptual Framework.....	26
2.8.1	Efficiency.....	27
2.8.2	Effectiveness.....	27
2.8.3	Transparency.....	28
2.8.4	Accountability.....	28
2.8.5	Participation.....	29
2.8.6	Rule of law.....	30
2.8.7	Responsibility.....	30
2.8.8	Consensus oriented.....	30
2.8.9	Equity and inclusiveness.....	31
CHAPTER THREE.....		32
3.0	METHODOLOGY.....	32
3.1	Study Area.....	32
3.2	Selection of the Study Area.....	33
3.3	Research Design.....	34
3.4	Sampling Procedure.....	34
3.5	Sample Size.....	34

3.6	Data Collection	35
3.7	Data Analysis	35
3.8	Limitation of the Study	36
CHAPTER FOUR.....		37
4.0	RESULTS AND DISCUSSION	37
4.1	Background Characteristics of the Respondents.....	37
4.1.1	Sex and age of the respondents.....	37
4.1.2	Marital status.....	37
4.1.3	Level of education.....	38
4.2	Main Occupation and Source of Income	39
4.2.1	Main occupation.....	39
4.2.2	Source of income	40
4.3	Animal Health Governance.....	41
4.3.1	The director of veterinary services (DVS).....	41
4.3.2	Zonal veterinary laboratory agencies.....	41
4.3.3	Veterinary officer-regional secretariat (VO-RS)	42
4.3.4	The district veterinary officer	42
4.3.5	Livestock field officers	43
4.3.6	The private sector.....	43
4.3.7	Livestock keepers.....	43
4.3	Animal health governance structure	44
4.4	Animal Health Services in Ngorongoro District.....	44
4.4.1	Is the dip tank working?.....	45
4.4.2	Access to subsidies	46
4.4.3	Does the government support in vaccination of the disease?	46

4.4.4	Affordability to buy veterinary drugs from veterinary shops	47
4.4.5	Provision of animal health services by LFOs	47
4.4.6	Is there a committee responsible for animal health services in the village?	48
4.5	Governance Related Factors Affecting Delivery of Animal Health Services	49
4.5.1	Lack of accountability: (hearings of complaints submitted to the village committee and measures are taken)	50
4.5.2	Lack of transparency (Poor dissemination of information, implementation of projects and distribution of subsidies).....	50
4.5.3	Lack of responsibility by livestock field officers to livestock keepers in the delivery services.....	51
4.5.4	Lack of equity in the distribution of resources	51
4.5.5	Efficiency and effectiveness (unfair and inconsistent legal system and incorrectly prioritizing government services with citizen needs)	52
4.5.6	Rule of law (failure to enforce rules of act for prevention and control of transmissible animal diseases).....	52
4.5.7	Lack of participation in livestock related activities in village level planning.....	53
4.5.8	Consensus oriented (Decision making by all members of the community)	54
4.6	Association between Animal Health Governance Factors and Animal Health Services	55
4.6.1	Equity	55
4.6.2	Consensus oriented	56
4.7	Mortalities of Livestock in Relation to Governance Factors	58
4.8	Attitude of Respondents towards Governance Factors	59

4.9.1	Weaknesses of animal health governance.....	61
4.9.2	Improving animal health governance.....	62
CHAPTER FIVE		64
5.0 CONCLUSION AND RECOMMENDATIONS.....		64
5.1	Conclusions.....	64
5.2	Recommendations.....	65
5.2.1	Recommendations to policy makers at National level.....	65
5.2.2	Recommendations to Local Government Authority	66
5.2.3	Recommendation to Development partners.....	67
5.2.4	Recommendation to pastoralists and other community members	67
5.3	Recommendation for Further Research-Limitation	67
REFERENCES.....		68
APPENDICES		80

LIST OF TABLES

Table 1:	Background Characteristics of the Respondents.....	38
Table 2:	Main occupation and source of income	40
Table 3:	Points Scored for Animal health services by Respondents.....	44
Table 4:	Respondents Response on the quality of Animal Health Services	45
Table 5:	Statistics	45
Table 6:	Animal health services	49
Table 7:	Positive responses on Governance related factors affecting animal health services	54
Table 8:	Points Scored for Animal Health Services.....	55
Table 9:	Association between Governance factors and animal health services.....	57
Table 10:	Points Scored for Governance Indicators	58
Table 11:	Categories of Governance indicators	58
Table 12:	T-test to compare Governance Factors and Mortality of Livestock	59
Table 13:	Attitude of Respondents towards Animal Health Governance	60

LIST OF FIGURES

Figure 1: Indicators of good governance26

Figure 2: Maasai warrior driving cattle to pasture.31

Figure 3: Map of Ngorongoro District33

Figure 4: Animal health governance structure in Tanzania.....44

LIST OF APPENDICES

Appendix 1:	A household questionnaire.....	80
Appendix 2:	Conceptual Framework.....	86
Appendix 3:	Chi-square formula	87
Appendix 4:	The T-test.....	87

LIST OF ABBREVIATION

ASDP	Agricultural Sector Development Program
CAHWs	Community Animal Health Workers
CBO	Community Based Organization
DANIDA	Danish International development Agency
DVO	District Veterinary Officer
DVS	Director of veterinary Services
ECF	East Coast Fever
ERP	Economic Recovery Program
FAO	Food Agriculture Organization
FBO	Faith Based Organization
IFAD	International Food and Agriculture Development
JICA	Japan International Cooperation international
LDF	Livestock Development Fund
LFO	Livestock Field Officer
LGA	Local Government Authority
NGO	Non-Governmental Organization
NORAD	Norwegian Aid development
NPP	Ngorongoro Pastoralist Project
NSGPR	National strategy for Growth and Poverty Reduction
OECD	Organisation for Economic Co-operation and Development
OIE	Office International des Epizooties
SAP	Structural Adjustment Program
SPSS	Statistical Package for Social Sciences
TADs	Trans-boundary Animal Diseases

TVLA	Tanzania Veterinary Laboratory Agency
UN	United Nations
UNDP	United Nations Development Program
UNESCO	United Nations Educational, Scientific and Cultural Organization
NCAA	Ngorongoro Conservation Area Authority
URT	United Republic of Tanzania
VO-RS	Veterinary Officer-Regional Secretariat
WAHIS	World Animal Health Information System
WB	World Bank
WHO	World Health Organization
WHSBR	World Heritage Site and Biosphere Reserve

CHAPTER ONE

1.0 INTRODUCTION

The paper discusses on the animal health governance and the provision of such services particularly in pastoral areas. Ultimately the paper concludes by suggesting on how national animal-health governance may be strengthened, with particular emphasis on policies and delivery systems that will give pastoralists better access to animal-health services therefore improve livestock productivity and ultimately combat poverty among the poor.

1.1 Background Information

Livestock contributes 40% of the global value of agricultural production, employs 1.3 billion people, and supports the livelihood and food security of one billion of the world's poor, most of them living in rural areas of Africa and Asia. Beyond their direct role in generating food and income, livestock are a valuable asset, serving as a store of wealth, collateral for credit and an essential safety net during times of crisis. Livestock are also central to mixed farming systems. They consume waste products, produce manure for soil fertilisation and provide draught power for ploughing and transport.

In Tanzania there are approximately 17 million cattle (the third highest population in Africa south of the Sahara), 12.5 million goats and 3.6 million sheep. About 98% of the national herd, or approximately 16.7 million cattle, are in the hands of pastoralists and agro-pastoralists (Mukami, 2003). Animal diseases are crucial constraints in this: the animals of poor people are particularly vulnerable to disease because of the expense, absence or unsuitability of animal-health and production inputs and mobility. Diseases affecting livestock can have a devastating impact on animal productivity and production,

on trade in live animals, meat and other animal products, on human health and, consequently, on the overall process of economic development.

However, availability and quality of animal health services is greatly affected by the efficiency and effectiveness of the governance of veterinary services. The OIE has noted that implementation of good governance depends on good veterinary education and training (Peace, 2012). It is argued that a combination of governance approaches; hierarchical, dispersed and participatory is needed for animal health services and control of diseases (WHO, 2011).

In Tanzania veterinary services began when the German colonial government established a 3-person Veterinary Department in 1904 (Silkin, *et al*, 2002). In 1905, a Livestock Research Station was established at Mpwapwa for diagnosis and surveillance of livestock diseases, and two years later the first dip tank was constructed. By 1915 the first nine Native Veterinary guards had been appointed. These were illiterate people trained on the job to assist foreign veterinarians. Their appointment marked the first extension of services into rural areas. Mpelumbe (1997) quoted by Silkin and Kasirye (2002) pointed out that, the independent government set up 594 veterinary centres, run by diploma and/or certificate holders. They were used as reporting points for farmers, as drug distribution points, and as bull centres as well as for pasture development. Government veterinary clinics were very active. The aim of the government was for “one village, one extension worker” and the reach of the government services expanded significantly, with diploma and certificate holders being posted even at village level. Government veterinary officers were also allowed to engage in some private practice. They charged the full cost of private goods like medicines and operations, and mileage for visits to private farms, and retained one third of the service fee for work carried out during office hours. Vets bought

their own drugs and vaccines but used equipment belonging to the government (Mpelumbe, 1997).

From the mid 1970s onwards Tanzania faced severe economic difficulties. External factors were seriously undermining the economy, particularly low world market prices for export commodities and the oil price shocks of 1973 and 1979. Internally, nationalisation under the *ujamaa* system, the Kagera war, the collapse of the first phase of the East African Community and successive droughts all hastened a decline in agricultural productivity and the national economy (FAO, 1994). Structural Adjustment was therefore inevitable and, in 1987, the government launched the First Economic Recovery Programme (ERP I).

ERPI abolished subsidies on the purchase price of heifers from livestock multiplication units, which resulted in high prices for in-calf heifers. Government ceased to provide free dipping services in 1983, abolished government veterinary stores and liberalised drug sales in 1994, and abolished government veterinary clinics in 1997 (Malewas and Lengisugi, 2001). In the late 1980s, the delivery of veterinary services was moved wherever possible, from the public domain to the private sector. Veterinary regulation and management of epizootic diseases were retained within the public sphere but pushed curative animal health care into a private market (Mugunier, 2002). In Tanzania, since the markets are thinly spread, institutions for contract enforcement are weak, and infrastructure is underdeveloped, veterinary service privatization has had varied impact in different regions, with marginal pastoral areas receiving minimal consideration (Mugunier, 2002). In order to regulate the veterinary professional in 2003, the government enacted the Veterinary Surgeons Act. The Act provides for the registration of veterinaries, enrolment or enlistment of the paraprofessional and paraprofessional

assistant veterinarians. It also establishes the Veterinary Council as a body cooperates to control and regulate the discipline and business of veterinary. The Act repeals the Veterinary Surgeons Ordinance, 1958 (Rutabanzibwa, undated).

However, good governance is deeply problematic as a guide to the provision of animal health services. Getting good governance calls for improvements that touch virtually all aspects of the public sector—from institutions that set the rules of the game for economic and political interaction, to decision-making structures that determine priorities among public problems and allocate resources to respond to them, to organizations that manage administrative systems and deliver goods and services to citizens, to human resources that staff government bureaucracies, to the interface of officials and citizens in political and bureaucratic arena (Grindle, 2004).

In Ngorongoro District, pastoralists constitute 90% of the total population. Apart from economic and employment opportunities, livestock provide hides and skins, manure for land fertilization, draught power; and they also fulfill cultural roles, which are valuable to many communities (Ole-Neselle *et al.*, undated). The survival of the rural poor, particularly pastoralists, very often depends on their livestock. It is therefore crucial that wherever they happen to be, they can have access to animal health services; and that the services are affordable, considering their limited purchasing power (Peace, 2012).

Income from selling stock is used to pay school fees, hospital bills, and marriage costs, improve breeding stock, housing, buying veterinary drugs or backpack sprayers, purchasing food, paying wages or start some other forms of business (Kipuri *et al.*, 2008). Inadequate of veterinary services in pastoral community means exacerbation of poverty

among pastoralists. Pastoralists in Ngorongoro face more threats in their way of life now than ever before due to loss of livestock caused by emerging diseases (Fratkin, 1997).

In 1996, a bilateral project between Tanzania and Denmark, namely, Ngorongoro Pastoralist Project (NPP) facilitated the private sector, introduced Community Animal Health Workers (CAHWs) and made efforts to improve animal health delivery services in Ngorongoro District. The project phased out in 2009, the private sector ceased and the CAHWs system collapsed (Ole-Neselle *et al.*, undated). This has led to heavy losses of livestock and their bi-products, and income from them due to emerging and re-emerging animal diseases and zoonoses exacerbated by drought in 2009/10 (Ubwani, 2011; Kipuri *et al.*, 2008).

1.2 Problem Statement

While good governance has been on the development agenda since the late 1990s (UN, 1998), animal health governance issues have remained relatively neglected in the debate on animal health services. This has resulted in inadequate investment in the public and private sectors for animal health services, especially in pastoral and remote areas (Riviere, 2008). In Ngorongoro District; the situation is triggered by poor infrastructure, communication, physical remoteness, the mobile lifestyle of pastoralists over vast areas, high delivery costs, and reluctance of qualified vets in the public and private sectors to live in these areas (Mukami *et al.*, 2003). Despite local government reforms since the late 1990s, including privatisation of animal health services with the aim of improving animal health systems' efficiency and effectiveness whilst reducing public expenditure, animal health services have not improved to the extent expected in the area (Riviere, 2008). Good governance as defined by World Bank (1994) emphasizes the need for transparency and accountability in policy making processes and the significance of all actors

performing their responsibilities effectively in a sustainable, coordinated and coherent manner. In order to contribute to mitigation of the problem, the study analysed the animal health institutional framework and assessed the delivery of animal health services in the study area.

1.3 Justification of the Research

The research outcomes will add to the body of knowledge of the public and form a way to develop an appropriate animal health governance system that will enhance efficient delivery of animal health services in pastoral and remote areas. Since animal health is primary to animal production, the outcomes of the study will contribute to influence improvement of livestock production through improved access to veterinary services in pastoral areas. High quality of hide and skins are a result of improved animal health services and these are important by-products of livestock which are inputs to the industrial sector and contribute significantly to foreign exchange earnings in Tanzania (URT, 2011). The study is in-line with the NSGRP cluster III on governance issues. The study is in-line with the National Livestock Policy of 2006 assert that; “remote areas which are still under serviced modalities will be worked out in collaboration with Local Government Authorities to improve livestock services in those areas of the country” (URT, 2006).

1.3 Objectives and Hypotheses

1.3.1 General objective

The general objective of the research was to analyse animal health governance and related factors affecting delivery of animal health services.

1.3.2 Specific objectives

- i. To analyse animal health governance system
- ii. To assess animal health services in the study area
- iii. To determine governance related factors affecting delivery of animal health services in pastoral areas

1.3.3 Hypotheses

The following null hypotheses were tested.

- i. Animal health governance factors do not significantly associate with animal health services.
- ii. Mortalities of livestock do not differ significantly when governance factors hold differently

CHAPTER TWO

2.0 LITERATURE REVIEW

This section presents definition of key terms, namely; Pastoralists, Governance and Animal Health and subsequently literature on the subject matter in question. Pastoralists are people who depend for their living primarily on livestock. They inhabit those parts of the world where the potential for crop cultivation is limited due to lack of rainfall, steep terrain or extreme temperatures. In order to optimally exploit the meagre and seasonally variable resources of their environment and to provide food and water for their animals, many pastoralists are nomadic or semi-nomadic (Rota *et al.*, 2009).

The type of livestock pastoralists keep varies according to area, and includes sheep, goats, cattle and camels, but also yaks and horses in Central Asia, buffalo in South Asia, llamas and alpacas in South America, and reindeer in the Palearctic region. An important characteristic of pastoralists is their close relationship with their animals. The identity of pastoralists is based on the close association with their livestock that forms a key component of their social and ritual life. By keeping animals under conditions that are close to the wild, but giving them the benefit of protection and health care, pastoralists represent a cultural counterpoint to industrialized animal production in the west (Rota *et al.*, 2009).

Understanding pastoralism and its future is the subject of fierce debate. The term 'pastoralism' is used to describe societies that derive some, but not necessarily the majority, of their food and income from livestock. For many decades, governments regarded pastoralism as 'backward', economically inefficient and environmentally destructive, leading to policies that have served to marginalise and undermine pastoralist

systems. More recently, pastoralism has come to be regarded by many as a viable and economically effective livestock production system, but the policies needed to reverse its historical marginalisation and address the chronic levels of poverty and vulnerability faced by many pastoralist communities have yet to be put in place.

We define pastoralists both in the economic sense (i.e. those who earn part of their living from livestock and livestock products) and also in the cultural sense, in which livestock do not form the main source of income, yet people remain culturally connected to a pastoralist lifestyle in which the significance of livestock is more cultural than economic. Herding livestock over rangelands will remain part of a vital and dynamic production system for many but not all who live in the arid and semi-arid lands of the Horn and East Africa (Connor, 2009).

2.1 Governance

Governance has been defined as a system of values, policies and institutions by which a society manages its economic, political and social affairs through interactions within and among the state, civil society and private sector (UNDP, 2007). According to the Commission on Global Governance (1995), governance is the sum of the many ways individuals and institutions, public and private, manage their common affairs. It is a continuing process through which conflicting or diverse interests may be accommodated and cooperative action may be taken. It includes formal institutions and regimes empowered to enforce compliance, as well as informal arrangements that people and institutions either have agreed to or perceive to be in their interest. Hyden and Court (2004) cited by Kayunze *et al.* (2011) define governance as ‘the formation and stewardship of the formal and informal rules that regulate the public realm, the arena in

which state as well as economic and social actors interact to make decisions' (Kayunze *et al.*, 2011).

Animal health governance, therefore, is the relationship between practitioners and leaders with local, national and international actors to foster health benefits to society and individuals through well managed association with animals. Governance system in any society fulfills a set of core functions of assuring security, delivering basic public sector services efficiently and effectively, and generating legitimacy. Grindle (2010) argues "scholars and practitioners need to develop a reasonable understanding of what good governance can deliver-and what it cannot. They must also assume more realistic expectations about how much good governance can be expected in poor countries struggling with a plethora of demands on their capacities to pursue change". Msellati, (2012) asserts "absence of a results framework limits the ability of the Veterinary Services, and their line ministry, to demonstrate the economic and public health benefits of improved service delivery and policy reforms.

One of the main prerequisites for good veterinary governance is for Veterinary Services to be independent, that is to say they are able to carry out their mandate while remaining autonomous and free from any commercial, financial, hierarchical or political pressures that could lead them to make technical decisions that were contrary to OIE standards (Pastoret *et al.*, 2011).

The successful animal health governance requires co-production as well as the involvement and cooperation of citizens, consumers and livestock keepers. As governance becomes more widely diffused throughout society, working directly with the public can strengthen transparency and accountability.

The public has got its main role to play on certain aspects like putting the conducive environment for the private sector to work, to deliver clinical services, to deliver vaccinations, to deliver advice, improve availability and affordability of inputs for example; drugs, that a lot of farmers cannot afford. This should be done and everybody must be involved, from public, private and farmers themselves. It is evident that you cannot also have good animal health if farmers cannot afford the drugs or the vaccines therefore government intervention must be there (Melewas, 2010).

Moore and Hartley (2010) quoted by Kickbusch and Gleicher (2012) argued that the new class of governance innovation crosses the boundaries of organizations, creating network-based public service production systems, which tap into new pools of resources, exploit government's capacity to convene, exhort and redefine private rights and responsibilities and redistribute the right to define and judge the value of what is being produced.

The OIE advocates that improving the governance of animal health systems, in both the public and private sector, is the most effective way to safeguard global animal health and human health when zoonoses (animal diseases transmissible to humans) occur. Animal health crises which appeared in recently such as foot and mouth disease, Rift valley fever or avian influenza have shown how the OIE's transparent and consistent approach, based on high-quality scientific advice and practical experience, has been very useful for the management of these threats as well as political credibility, both at the national and international level. As an example, since its first appearance in late 2003, the presence of avian influenza is constantly decreasing worldwide, primarily because of the huge improvements/investments made by countries in good governance of national veterinary services. More than 60 countries, having experienced H5N1 avian influenza outbreaks, became free of the disease quickly thanks to the implementation of the OIE concepts of

early detection and rapid response. Regional representatives contribute to the OIE advocacy efforts in terms of capacity building at regional level (Vallat, 2011).

Good governance is designed to improve the overall governance of an organization by increasing its effectiveness and legitimacy, advocates establishing a solid foundation for rules and procedures, which will help community fulfil their individual goals (Carrington, 2008). Hence the need and call for increased attention to this sector especially in areas of prevention, detection, rapid response, control and eradication of animal diseases governments must provide an environment that has effective and efficient institutions and policies. This is to say, government's enterprises and its people must cope with political, social and cultural dimensions (Mimicopoulos *et al.*, 2007). This is essential if we are to meet the increasing demands and surmount the challenges of the livestock sector (Peace, 2012).

However, availability and quality of animal health services is greatly affected by the efficiency and effectiveness of the governance of veterinary services, weak mechanisms for enforcement of laws and regulation at the National and Local government level; outdated legislations; inadequate capacity of regulatory institutions; poor regulation of livestock and services (URT, 2010).

Grindle (2007), quoted by Brinkerhoff and Johnson (2008) argues that national governments' failure to improve their countries economic situations in cases where higher per capita incomes fail to result in better governance, one possible explanation is 'state capture', defined as the illicit influence of the elite in shaping the laws, policies and regulations of the state are therefore likely to resist demands for change (United Nations, 2007).

In year 2000, the Tanzanian Ministry of Regional Administration and Local Government directed all local authorities to establish Local Livestock Development Funds (LDFs) using revenue from meat inspection, livestock market inspection, livestock sales and other livestock related services. To date few LDFs are up and running since under the local government reforms, district authority resources are limited and cannot support provision of private good services (Rutabanzibwa, undated) due to problems of distance, difficult logistics, physical hardship and negative attitudes towards pastoralists (Silkin *et al.*, 2002).

2.2 Animal Health Services

The OIE defines Veterinary Services as: ‘the governmental and non-governmental organisations that implement animal health and welfare measures and other standards and recommendations in the *Terrestrial Code* and the *OIE Aquatic Animal Health Code* in the territory. The role of Veterinary Services is to supervise veterinarians, veterinary paraprofessionals and private-sector organisations, to implement measures, to issue international veterinary certificates and to ensure compliance with international standards, so as to protect domestic and foreign animal health status (Msellati, 2012).

Animal health services are the very core services of the Veterinary Authority to prevention and control of animal diseases, including those transmissible to humans, and it plays a major role in the country as guarantors of animal health and associated public health issues. Pastoralists worldwide are the consumers of these services.

Control of livestock diseases and protection of animal health are essential components of an effective animal breeding and production programme. For more than three decades post independence all these have been the responsibility of the public sector in Tanzania.

By then Government through the Ministry of Agriculture used to provide clinical services (i.e. professional services on diagnosis treatment and control of livestock diseases); control of major notifiable and zoonotic diseases; National Research and Training Institutes and Central Laboratories (Nessele, Undated). Veterinary Services are definitely accepted and recognized as a global public good for which the public veterinary services of a country should take primary responsibility for the good governance and service delivery in accordance with international standards and public expectations.

However, the experience is that where some of these services for which the public veterinary services are responsible, are liberalized or privatized, the loss of control results in a sharp decline in the quality of services rendered. In some instances, the delivery of these services is replaced by opportunists not serving the ideal of global public good of veterinary services. This has especially been noticeable in the regulation and control over the registration, quality control and marketing authorization of veterinary medicinal products in Africa (Brucner, 2008). While livestock remains a critical contributor to the socio-economic development of communities and nations, attention accorded to the sector has not been equal. Veterinary services are generally poorly developed in many underdeveloped countries of Africa and Asia. The situation is particularly serious in more remote, dry land areas inhabited by pastoral and agro pastoral communities. These areas are characterized by their large size, harsh climate, poor infrastructure for example dip tanks and charco/dams and relatively small but mobile human populations. These factors are constraints to conventional fixed-point service delivery through facilities such as government or private, urban-based veterinary clinics (Catley, 1998). Although the central government and LGA have participated in construction of dip tanks, often these dips are not utilized fully because they are not in working condition and due to expensiveness of acaricide.

Regrettably, in Tanzania veterinary professionals, for economic or other reasons, are not willing or able to provide services to these remote areas, yet oppose efforts to sanction paraprofessionals who could provide such services (Sherman, 2010). Although the same budgetary constraints affect the animal health sub-sector, authorities have not attempted a similar coordination of animal health services (AHS), especially in rural and remote areas (Riviere, Undated). This has led to heavy losses of livestock and their bi-products, and income from them due to emerging and re-emerging animal diseases and zoonoses (animal diseases transmissible to humans) (Ubwani, 2011; Kipuri *et al.*, 2008). After the World Bank released privatisation guidelines for the livestock sector in 1991-92 with the aim of improving Animal Health systems' efficiency and effectiveness whilst reducing public expenditure, the results have not proved to be as expected (Riviere, Undated).

2.3 Structural Adjustment Programs

In the immediate postcolonial period of the 1960s, the public-sector veterinary services of most developing countries were engaged in delivery of the full range of veterinary activities and services with little or no participation by the private sector. In the 70s - 80s the world economic recession, the structural adjustment policies and growing fiscal pressure, led to governments sharply reducing expenditure on public services and this adversely affected the availability and quality of veterinary service delivery (Peace, 2012). The policy was influenced by international institutions. Governments started to seek financial remedial assistance. It was felt that the rescue lay in structural adjustment of their economies. Changes in fiscal, financial and pricing policy included elimination of subsidies and removal of tariffs; institutional reforms included privatization of government-owned enterprises and the introduction of cost recovery (FAO, 2002).

Government employment of professional veterinary staff was frozen and many of those in government employment were retrenched. Malewas and Lengisugi (2001) cited by Silkin and Kasirye (2002) mention the staffing levels in the public veterinary sector fell from 15 000 to 5000, the majority of redundancies being Livestock Field Assistants and Livestock Field Auxiliaries who had played an important role in delivering veterinary services at ward level. During the 1990s, several studies raised doubt as to whether structural adjustment programmes had under-rated the public goods aspects of national veterinary services (Cheneau, 1999).

FAO (2002) quoted by Cheneau (2004) asserts that, there is an increasing realisation today that sector reforms have not consistently resulted in adequate delivery of essential services and markets once provided by the State. The reasons are complex, but the result is that the great majority of rural poor do not yet enjoy access to the range and quality of services and markets required to support a full-bodied livestock-related livelihood although some adjustment programmes have been sustained, elsewhere there have been slippages and, in some cases, a complete collapse of adjustment effort at an early stage of reform. For example, in Kenya and Tanzania, partial reforms and extremely poor sequencing have reduced the effectiveness of the adjustment programmes and in some cases have led to perverse and unintended consequences (Booth 1994; Richardson 1996). Kenya's policy reforms, in particular, which started relatively late and were implemented at a relatively slow pace, contrast with Ghana's adjustment experience. Ghana implemented comprehensive adjustment programme and undertook its reforms at an early stage (Ahmed *et al.*, 1997).

2.4 Reform Programme

Reforms of institutions were based on the international structural adjustment programs (SAPs) which were adopted in the mid-1980s as described in the following section. The reform programme seeks to decentralise rights and responsibilities from the central government to the district and through the district to the village. This is a transfer of political, administrative and fiscal authority to a lower level of government. Within this framework districts are supposed to offer or help to establish mechanisms that are supportive of the poorer, more vulnerable and institutionally weaker sectors of the village community. Decentralisation reforms hold many promises including local level democratisation and possibly improved service delivery for the poor and the needs of the often disenfranchised people in rural areas (Msellati *et al.*, 2012).

In the case of Veterinary Services, however, not all functions can or should be decentralised. The principle of subsidiarity provides the basis for identifying appropriate levels of decentralisation. Controlling animal infectious diseases and zoonoses, for example, are functions that are better addressed at the national level, even though implementation requires considerable administrative capacity at sub-national and local levels (Msellati *et al.*, 2012).

However, effective implementation often lags behind rhetoric and the effective delivery of promises also depends on a range of preconditions and the country specific context for reforms (Grindle, 2010). They can do this through activation of village-based processes of formulation of secondary legislation (by-laws) and associated agreements, to enable them access support from donors, and willing private sector actors for the purpose of advancing socio-economic and other development within their areas of jurisdiction (Musyoka, 2005). Veterinary services were further weakened by decentralization policies which

broke the link between the Director of Veterinary Services (DVS) and field staff, so the DVS has no authority to enforce adequate disease reporting. This issue is particularly relevant in pastoral areas where epizootic diseases are believed to persist, and where decentralization has reduced the DVS's capacity to be informed about the disease situation and to implement effective disease control measures. The relationship between the veterinary profession and the state has been gradually eroded by the application of neoliberal management techniques to the governance of animal health (Enticott, 2011). Among others, veterinary services were dismantled from the public domain and moved to the private sector. This is depicted in the subsequent section.

2.5 Privatisation of Animal Health Services

In the structural adjustment period that started in the 1980s, government provision of animal health services came under increasing criticism for high costs and limited effectiveness. It was argued that in seeking to move services from public to private sectors, in most domains any form of private enterprise is likely to outperform the public sector. This led to a drive for the privatization of veterinary services, with the aim of diminishing drastically the role of the state in these activities. It is argued, Chapman and Tripp, (2002); Fassi-Fehri and Bakkouri (1995); Rivera *et al.* (2000) quoted by Pica-Ciamarra *et al.* (2010) public authorities may subcontract delivery of animal health services and veterinary supplies to private practitioners in order to improve both the quality and coverage of services. The assumptions here are that inefficiencies/disincentives within the government bureaucracy would be reduced; there would be definite savings in the public budget as many public veterinarians/animal health assistants would no longer be public civil servants and private animal health service providers assured of a minimum remuneration also be expected to supply goods and services not otherwise offered to rural households. An important analytical framework to justify this

approach was developed by Umali *et al.* (1994) who used concepts of public economics to determine the services for which a market for animal health services was expected to emerge, a market in which private veterinarians and other private service providers could flourish. Different scholars have reported varying views with regard to privatization of animal health services. Cheneau *et al.* (2004) indicates that, the privatisation of veterinary services in Africa, especially in sub-Saharan countries, has had some positive effects, particularly as regards the availability of veterinary remedies and cost recovery. The experience showed that this approach had its merits in high-potential areas and market-oriented livestock systems (Oruko and Ndung'u, 2009).

However, veterinary service privatisation programme has had varied shocks in different regions as far as animal health service provision is concerned, while marginal areas receiving minimal attention unlike in urban areas (Mugunieri *et al.*, 2002; Mlangwa *et al.*, 2008).

While the delivery and privatisation of veterinary services is relatively hopeful in urban centres or high potential areas, private animal health services are more difficult to implement in more remote areas where, due to economies of scale such services are not provided by the market-dependent private sector. As a result of privatisation in 1990's veterinary governance has weakened livestock health services (FAO, 2002). Since professionals are not willing to expand their practices and are not motivated to provide services in those areas where animals are widely dispersed and veterinary drug use is low, marginal areas and the poorer livestock keepers remained without adequate access to animal health services (Okwiri *et al.*, 2001).

The incentive policies to encourage young veterinarians to go into private practice are often insufficient to make this type of activity attractive. Specifically, the support provided by the State is inadequate or poorly targeted, and start-up loans are difficult to repay because of inordinately large investments in comparison to turnover.

It is only in this case that it is justifiable for public sector employees to conduct private activities and this “temporary exemption” should be clearly identified as such in law and abolished as soon as a private veterinarian is established in the area (Vallat *et al.*, 2006). This is to say, market economy and public service are often not compatible, and in areas that are economically disadvantaged or remote, real cost recovery from farmers is hardly likely, to the detriment of the veterinary health network, the animal health accreditation mandate, which could provide additional income and above all ensure the sustainability of some veterinary practices through multi-year campaigns, is inadequately compensated. Generally speaking, the funds allocated by States to control animal diseases are limited and, in particular, the financing of activities linked to animal health approval remains inadequate (Alive, 2007).

The improvement of animal health service delivery in any country, the public has got its main role to play on certain aspects like putting the encouraging environment for the private sector to work, to deliver clinical services, to deliver vaccinations and advice. This should be done and everybody must be involved, from public, private and farmers themselves, that link must be there. In order to improve the availability of inputs like drugs, that a lot of farmers cannot afford, government must intervention to make it available and affordable (Mellewas, 2010).

However, Tber (1995) quoted by Ashley (1996) and Ragwa (2012) argued that reforms did not consider the objectives and opinions of key stakeholders in State Veterinary Services, and had, furthermore, been motivated primarily by a need to reduce budget deficits rather than improve the delivery of Animal health Services. It is established that private provision alone is not optimal, and a blend of private and public sector Veterinary Services is required to utilize the virtues of both (Sen *et al.*, 2003). Nevertheless, analysis of the economic properties of veterinary services suggest, however, that due to the ‘public good’ nature of certain services, the presence of externalities, unequal access to market information and the economies of scale required to provide cost-effective animal health services in rural areas, responsibility for providing many veterinary services is likely to remain under the public jurisdiction.

All these positive and negative effects of privatisation, as well as other constraints to the efficient delivery of veterinary services in Africa almost twenty years after privatisation, have been extensively analysed and discussed in several international forums and publications.

Some of the major challenges in the delivery of livestock services in Africa are the organisation of regulatory bodies, the demarcation between public and private goods services, the management of the transfer of services from the government to the private sector, the delivery of animal health services in low input areas and the provision of adequate services of an acceptable standard. New approaches, beyond market-dependant privatisation, are therefore needed to improve the quality of service delivery (Holden *et al.*, 1996).

Recently, a number of community-based approaches have been attempted through donor funded projects and lending institutions in different countries to improve the delivery of animal health services in pastoral and poor areas. In Tanzania, efforts to improve animal health services were attempted by a bilateral Tanzania-Denmark Pastoralist Project-NPP (Phase I) on 1st July 1998 to reduce poverty among pastoralists in Ngorongoro Conservation Area. The aim of the project approach was to empower local institutions and communities by involving them in decision making, implementation and monitoring of activities such as restocking, water development and veterinary services (Kipuri, 2008). A common approach is to train locals to operate as community based Animal Health Workers (CAHWs) providing specific and limited activities, e.g. vaccination or basic animal health care.

In order to bring veterinary services closer to communities, NORAD (Norwegian Development Assistance) provided funding for the NCAA to build four livestock development centres (LDCs), which were later handed over to ERETO-I for private veterinary services. Private vets were contracted to service restocked households and set up practices serving other livestock keepers. When the donors pull out the services ceased due to lack of support.

2.6 Community Animal Health Workers (CAHWs)

Leyland (2002) quoted by Cheneau (2004) concluded that, CAHW system constitutes a major development in the provision of basic veterinary care in the Low Income Food Deficit Countries, particularly in extensive livestock systems. Many countries in Africa and Asia have attempted to employ CAHWs in a productive and sustainable manner. Studies in several countries in Africa (Kenya, Tanzania, Sudan) and Asia (Philippines) show that access to such services can reduce livestock disease-related losses and improve

livelihoods (Cheneau, 2004). Evaluation of CAHWs' competence on animal health service deliveries was conducted in Simanjairo (Tanzania) based on three attributes namely correctness, inconsistencies and not keeping/knowing or doing. Based on this formal assessment, the majority (over 60%) of the CAHWs were judged to be competent in keeping proper drug records, providing correct disease diagnosis and correctly matching the drugs with diagnosis. The main technical weaknesses of the CAHWs were poor and inconsistencies of drugs and acaricide dosage computation. If adequately trained and supervised, CAHWs are capable and may contribute toward delivering animal health services in underserved areas (Swai, 2012). The competence of CAHWs equates that of livestock auxiliaries employed by the government previously. In Tanzania, CAHWs lack legal recognition by the law.

2.7 Theoretical Framework

The research is guided by Stakeholders theory. In 1984, R. Edward Freeman published his landmark book *Strategic Management: A Stakeholder Approach*, a work that set the agenda for what we now call stakeholder theory. The theory is based on the dependency of many different groups on the firm management. This approach to corporate governance strongly suggests that corporations are run by loosely defined groups of people, each seeking something different from the organization. This theory can show who benefits from a firm, as well as who, in fact, controls its corporate policy (Heath, 2004). The theory values those who have a stake in the functioning of the firm and for this case these include customers (pastoralists), suppliers (animal health service providers), employees (government veterinary practitioners), the community and even the government and its regulatory agencies.

2.7.1 Function

The stakeholder theory is both a descriptive and a normative theory. It is descriptive in that it functions as a way of describing how an organisation is constituted and controlled. It is a normative theory in that it suggests how an organisation should be run. It mandates that a well organised organisation will take all “stakeholder” groups into account in formulating basic policies. Corporate governance mechanisms and controls are designed to reduce the inefficiencies that arise from moral hazard and adverse selection. To ensure an effective corporate governance framework, it is necessary that an appropriate and effective legal, regulatory and institutional foundation is established upon which all market participants can rely in establishing their private contractual relations. This corporate governance framework typically comprises elements of legislation, regulation, self regulatory arrangements, voluntary commitments and business practices that are the result of a country’s specific circumstances, history and tradition. The corporate form of organisation of economic activity is a powerful force for growth and effective shareholder participation in key corporate governance decisions (ECOD, 2004).

2.7.2 Benefits of the stakeholders’ theory

Stakeholder theory is a highly democratic and participatory concept of corporate governance. Under this model, the firm is not merely a profit making machine for elite investors and major executives. It is a profoundly social institution that is meant to serve more than its shareholders. It is a communal institution that benefits large segments of the local population. Thousands of lives are potentially connected to and dependent upon the proper workings of the firm.

2.7.3 Problems of the stakeholder theory

Since stakeholders are from large and very diverse groups, it seems hard to make them components of a workable theory of corporate “governance.” The groups mentioned as possible or actual stakeholders are so varied and wide that it is practically impossible that they speak with a common voice, let alone actually serve in an oversight capacity. The stakeholder theory might be successful in identifying those who have a vested interest in the firm, but whether these stakeholders can actually “run” a firm is a very different matter.

At present most African governments lack the organizational capacity and political will necessary to the framing of animal health as “commons” or as a “global public good”. Though national governments may take steps to provide public goods nationally, there is no global government to provide or pay for global public goods (Nora, 2011).

Animal health governance seek optimal division of functions and responsibilities across various level of public sector management and the service delivery providers hence require careful balancing of resource inputs and strong systems for flexible adjustment of activities during implementation, based on efficient monitoring and evaluation procedures and good planning and budgeting systems (JICA, 2008). There is no single model of good corporate governance. However, work carried out in both OECD and non-OECD countries and within the Organisation has identified some common elements that underlie good corporate governance. The Principles build on these common elements and are formulated to embrace the different models that exist.

2.8 The Conceptual Framework

The conceptual framework (Appendix 2) for this research links governance characteristics (indicators) and animal health services. Governance as the capacity of the government to effectively formulate and implement sound policies has is measured by indicators that can influence delivery and monitoring of services including animal health. The UNDP, which has taken a strong interest in the promotion of good governance, singles out characteristics like participation, transparency, accountability, effectiveness, and equity as its most important characteristics (Grindle, 2010). For the World Bank, for example, attractive characteristics of good governance are accountability and transparency, efficiency in how the public sector works, rule of law, and ordered interactions in politics. The application of the stakeholders' theory relative to this study relies on the democratic and participatory concept of corporate governance. Relative to the theory, good governance has the responsibility to serve the whole population regardless of remoteness of the area.



Figure 1: Indicators of good governance

Source: World Bank-2011

2.8.1 Efficiency

This is a government's ability to establish predictability in the institutional and policy environment. Afonso *et al.* (2006) quoted by Mimicopoulo (2007), emphasizes that; *“efficiency is brought about by an economically efficient system of production and distribution as well as a fair and consistent legal system and correctly prioritizing government services to correspond with citizen needs”*. This includes the provision of services such as livestock disease control, treatment vaccination, supply of veterinary drugs and disease surveillance. However, the biggest and most fundamental problem in terms of the efficiency of service delivery is the categorically insufficient number of personnel assigned to the local administrations. Under the above-cited circumstances, it would be important to seek possible alternative measures as well. One of the options is to take advantage of the existing actors available in each local area, including the community members themselves, their organisations (CBOs), NGOs, Faith Based Organisations (FBO) as well as private sector entities, to fully mobilise them and build a total local societal system that works best in that particular region for the sake of improving service delivery (JICA, 2008). High transaction costs due to poor market infrastructure, subsidised delivery of health services resulting in unfair competition, absence of appropriate institutions for market regulation, vested interests in policy circles, and the populist nature of the state resulting in market distortions and inefficiencies are some of the main constraints affecting the efficiency and equity of livestock service delivery (Ahuja, 2001).

2.8.2 Effectiveness

Improving the effectiveness and efficiency of service delivery, through decentralization but mainly through the delegation of management power and financial and administrative authority to lower level organizations (Land *et al.*, 2007) are critical for good animal

health outcomes while making the best use (efficiently) of resources at their disposal (Brinkerhoff *et al.*, 2008). This new situation calls for effectiveness and maximum responsiveness from Veterinary Services.

2.8.3 Transparency

The availability and clarity of information provided to the general public about government activity must also be accessible to as many citizen as possible with the goal of increasing citizen participation in decision making processes around service delivery (Land *et al.*, 2007). A lack of transparency creates opportunities for government corruption and reduces public sector efficiency. Linked with transparency is the issue of accountability. Indeed, the control of epizootics relies chiefly on speedy access to the full range of information on a country's animal health status. Nowadays there are huge flows of people and goods travelling long distances in a very short time and in many cases, the travel time are less than the incubation period of most infectious diseases. This new situation calls for effectiveness and maximum responsiveness from Veterinary Services. To ensure a timely response, animal diseases, including zoonoses, should be notified to the OIE immediately and with full transparency via World Animal Health Information System-WAHIS of the OIE (the (Pastoret *et al.*, 2011).

2.8.4 Accountability

Accountability is linked with the extent to which governments pursue the wishes or needs of their citizens (accountability as 'responsiveness') regardless of whether they are induced to do so through processes of authoritative exchange and control. Accountability cannot be enforced without transparency and the rule of law (WHO, 2011). It is a practice to account to some authority for one's actions. It is external, in that the account is given to another person or body outside the person or body being held accountable; it involves

social interaction and exchange, in that one side, that calling for the account, seeks answers and rectification, and the other side, that being held accountable, responds and accepts sanctions; it implies rights of authority, in that the person or body calling for an account is asserting the right of superior authority over the person or body that is accountable, including the right to demand answers and to impose sanctions. Accountability rests on the establishment of criteria for evaluating the performance of public sector institutions. This includes economic and financial accountability brought about by efficiency in resource use, expenditure control, internal and external audits. Accountability improves a government's legitimacy whereby transparency and participation are essential ingredients in establishing accountability. Delivery systems that make service providers accountable to the users and give the users a free choice among providers will enhance the power of the users to negotiate and demand appropriate quality services. This is also the case for poor livestock keepers (IFAD, 2004).

2.8.5 Participation

The participatory planning exercises as well as implementation mechanisms through user group administration are one of the most direct means of guaranteeing accountability. However, a problem still remains with this in a sense that in many cases there are only a limited number of residents who participate in these kinds of activities, and that the selection process used often lacks transparency (JICA, 2008).

The public sector can promote participation by enacting legislation that strengthens the freedom and plurality of media, establishing an independent electoral management body, and encouraging public input into decision making on government plans and budgeting. Participation requires enhanced capacity and skills of stakeholders and sustainable policies supported by institutions of public administration. Catley and Leyland (2001)

quoted by IFAD (2004) reviewed trends in community participation in animal health care and conclude “poor communities are able to select community animal health workers and maintain them for many years if the communities are sufficiently involved in the process and agree from the beginning on the problems to be solved and the concepts behind the project”.

2.8.6 Rule of law

Good governance requires fair legal frameworks that are enforced impartially, that decisions taken and their enforcement are done in a manner that follows rules and regulations and information is freely available and directly accessible to those who will be affected by such decisions and their enforcement (United Nations, 2007). This requires that the rules be known in advance, that they be actually in force and applied consistently and fairly, that conflicts be resolvable by an independent judicial system, and that procedures for amending and repealing the rules exist and are publicly known (IFAD, 1999).

2.8.7 Responsibility

Responsibility is part of a new form of governance, one that engages the person in governing himself or herself in terms of standards set by others. This new form of governance emphasizes “responsibilization,” in which individuals are induced to take responsibility for their actions O’Malley (1999) quoted by Merry (2011).

2.8.8 Consensus oriented

Mediation of the different interests in society to reach a broad consensus on what is in the best interest of the whole community and how this can be achieved is crucial. This can

only result from an understanding of the historical, cultural and social contexts of a given society or community.

2.8.9 Equity and inclusiveness

A society's well-being depends on ensuring that all its members feel that they have a stake in it and do not feel excluded from the mainstream of society. This requires all groups, but particularly the most vulnerable to have opportunities to improve or maintain their well being (Chief, undated). Decentralisation reforms are being promoted with the intention of improving the service delivery to achieve the overall national goal of poverty reduction. However, there is the danger of widening disparities between local governments in poor remote areas and those in large cities that have a lot of opportunities (JICA, 2008).



Figure 2: Maasai warrior driving cattle to pasture.

Source: gritty.org

CHAPTER THREE

3.0 METHODOLOGY

3.1 Study Area

The study was conducted in Ngorongoro District. Ngorongoro District is one among five districts of Arusha Region, inhabited by the pastoralists. The district, which is situated to the North-West of Arusha City, is as far as 400 km from its regional headquarters, a distance which is aggravated by most of it being on a rough road without tarmac. It has a land area of 14 036 km² with a population of 17 4278 (82 610 male and 91 668 female), according to the 2012 national population and housing census. With a projection of 2.9 population growth, in 2011 the population was estimated to be 168 381 (81 920 male and 86 461 female). The district has 3 administrative divisions, 21 wards and 55 villages. The administrative divisions are Loliondo, Sale and Ngorongoro. The latter covers 59% (approximately 8300 km²) of the district and is managed by the Ngorongoro Conservation Area Authority (NCAA), a UNESCO World Heritage Site and Biosphere Reserve (WHSBR), and a multiple land-use area to promote the three principles of integrated conservation and development: conservation of natural resources, tourism and human development (Fig. 3).

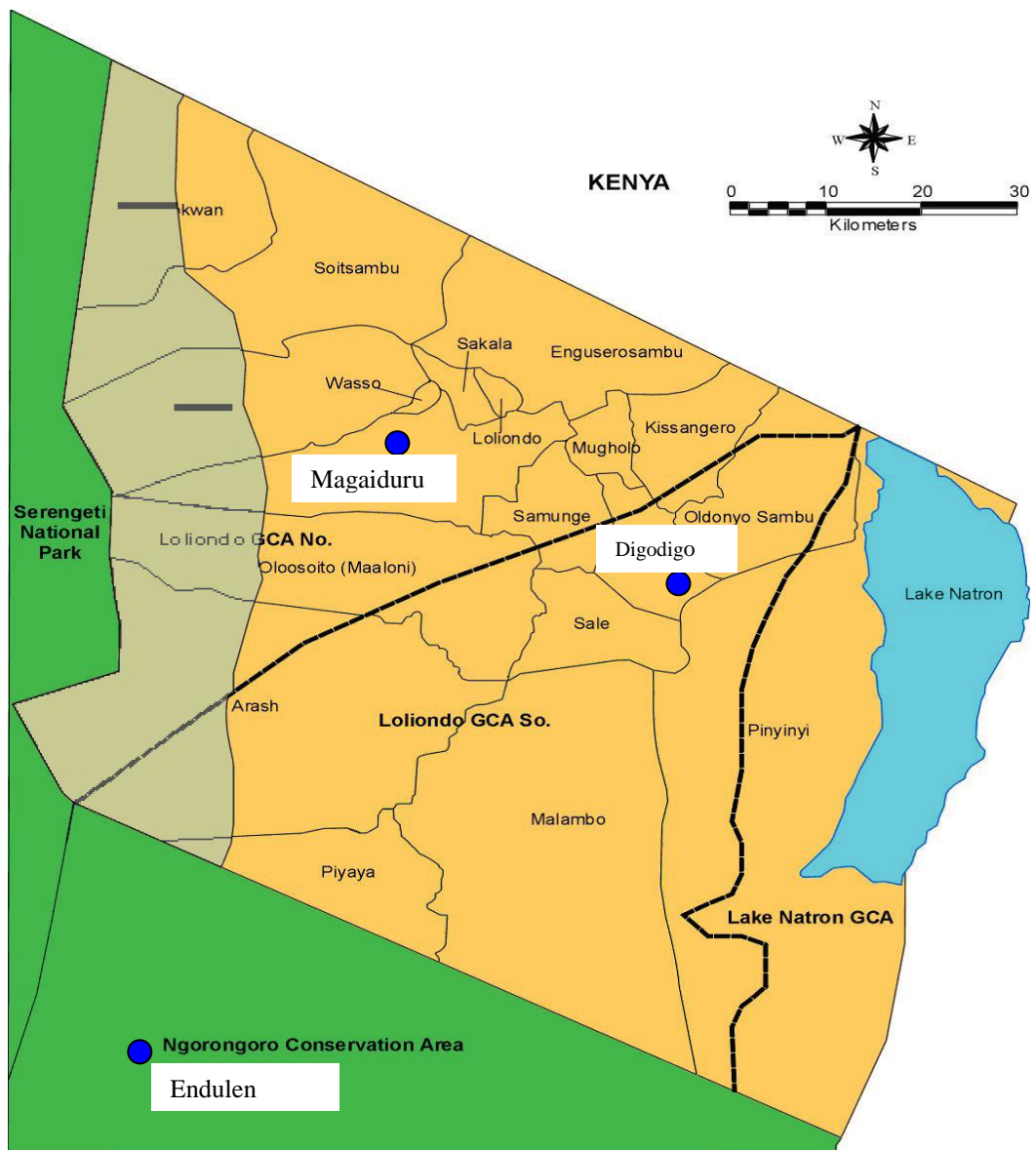


Figure 3: Map of Ngorongoro District

3.2 Selection of the Study Area

The eight regions of Mwanza, Shinyanga, Mara, Singida, Tabora, Dodoma, Arusha and Manyara account for more than 70% of the total cattle herd in the country. Pastoralism in which traditional cattle, sheep and goats predominate is concentrated in the northern (Arusha and Manyara) savannah plains where climatic and soil conditions do not favour crop production (URT, 2010).

The rationale for choosing Ngorongoro (One of the district constituting Arusha region) as the study area is its high potential for pastoral systems of livestock production characterized by high mobility, the area is a corridor for wildlife migration causing high diseases transmission to livestock and human and therefore high demand for efficient and effective livestock delivery services.

3.3 Research Design

Across-sectional research design was employed. The method is favoured because it is easy to collect data at a single point in time (Bailey, 1998). The resources and time frame were the limiting factors to employ longitudinal type of data collection.

3.4 Sampling Procedure

Both probability and non-probability sampling procedures were employed. The districts, three divisions, and three wards were selected purposively. Purposive sampling procedure was used to select three villages with livestock production as the main economic activity. The sample was drawn from the selected villages and the unit of analysis was a household.

3.5 Sample Size

The sample size of this study was 125 respondents. According to Bailey (1994), if a sample is to be subdivided, the smallest sub-sample should be at least 30 cases; therefore the sample of 125 respondents was large enough from the three villages for minimizing sampling errors. Data was collected from three villages.

3.6 Data Collection

Both quantitative and qualitative primary data were collected. Tools for primary data collection were questionnaire (Closed and open-ended) and interview sessions with the District Veterinary Officer and Livestock Field Officers to supplement the information collected through the questionnaire. Secondary data were obtained from monthly, quarterly and annual reports from the LGA offices. Other sources of information were journals, books, internet, publications and government depository.

3.7 Data Analysis

Collected information was analysed by the use of the Statistical Package for Social Sciences (SPSS). Qualitative information obtained from key informants was analysed using content analysis. Both descriptive and inferential analyses were done. Descriptive analysis was performed by computing descriptive statistics including frequencies, percentages, standard deviation, and minimum and maximum values of ordinal variables. Inferential analysis employed to test the two hypothesis of the research. Chi-square was used to test the first hypothesis “access to animal health services is not significantly associated with animal health governance factors”.

T-test was used to test the second hypothesis that states “Mortalities of livestock do not differ significantly where governance factors hold differently”. The t-test assesses whether the means of two groups are statistically different from each other. This analysis is appropriate whenever one wants to compare the means of two groups. In this research, mortalities of livestock will be compared with governance factors.

3.8 Limitation of the Study

During the study some limitations were encountered. One of the limitations was that much of the primary information depended on individual's memory whereby it was not easy to recall some of the information such as the exact number of livestock died on the question which demanded mortality of livestock rather were round figures. This was solved by the researcher making carefully probing which enabled the respondents to recall more information about the subject matter. Another limitation was that respondents were not ready to provide information demanding feedback reports from previous researches conducted by preceding researcher on different subject matter in the same area. This was solved by giving explanation that the research aimed at generating information that will be a guide towards formulation of good animal health governance and services.

CHAPTER FOUR

4.0 RESULTS AND DISCUSSION

This chapter summarizes the findings on the animal health governance and services in Ngorongoro District. The results presented in this chapter include demographic characteristics of respondents and background variables, animal health governance organisation, animal health services in the study area, factors affecting animal health services and inferential analysis (hypotheses testing results).

4.1 Background Characteristics of the Respondents

The background characteristics of the respondents are presented in (Table 1). These include sex, age, marital status and levels of education.

4.1.1 Sex and age of the respondents

The sex of respondents is presented by village (Table 1). In pastoral communities women have negligible roles in decision making socially, politically and economically. The age determines the economic and marital status of the respondents. The minimum age was 18 year and the maximum was 71 year while the mean age was 46 years.

4.1.2 Marital status

In pastoralist communities specific recognised groups are elderly ones who are married (having a '*Boma*'/'*engang*'- house), the youth/warriors-*morrán*, the age group that have not yet married, and *ngayook* who are considered as children. The results show that 94.0% of the people interviewed were married. Warriors (*Moran*) and *ngayook* groups have no permission to give any information concerning household matters.

4.1.3 Level of education

Mobility in search for pastures and water forces the pastoralists to migrate from well developed areas where social services are available to hostile environment areas where there are no social services like schools and hospitals. In these circumstances, the pastoralists lack access to education and health services. Saringe (2011) concluded as follows: *“Lacking good access to healthcare and education, pastoralists are hugely reliant on their animals”*. Despite governmental support, girls are not admitted to schools and for those in schools regularly drop out to help their mothers gathering firewood and fetching water in the changed harsh climatic conditions. Boys are more engaged in looking after the cattle of the family therefore

Table 1: Background Characteristics of the Respondents

Characteristics	Village of residence			Overall %
	Magaiduru (n=45) %	Digodigo (n=45) %	Endulen (n=35) %	
Sex of the household head				
Male	78.0	89.0	80.0	82.0
Female	22.0	11.0	20.0	18.0
Overall	100.0	100.0	100.0	100.0
Age groups				
18 – 25	16.0	11.0	11.0	13.0
26 – 35	24.0	38.0	23.0	29.0
36 – 45	31.0	29.0	34.0	31.0
46 – 60	16.0	9.0	26.0	16.0
Above 60	13.0	13.0	6.0	11.0
Overall	100.0	100.0	100.0	100.0
Marital status				
Married	93.0	98.0	89.0	94.0
Unmarried	7.0	2.0	11.0	6.0
Overall	100.0	100.0	100.0	100.0
Level of education				
None	36.0	24.0	46.0	34.0
Primary education	60.0	76.0	46.0	62.0
Secondary education	4.0	0.0	9.0	4.0
Overall	100.0	100.0	100.0	100.0

4.2 Main Occupation and Source of Income

4.2.1 Main occupation

Pastoralists keep livestock as their main source of income. The results show that about two-thirds (64%) of the respondents were engaged in livestock production. The types of livestock they kept by this community included cattle, sheep and goats. Few of them were keeping chickens, but as a source of income. Culturally, Maasai people don't eat chicken and fish. Recently, there has been a gradual shift to agricultural activities. Shifting to activities for a pastoralist, according to one elderly (name withheld), "*is a sign of poverty*". Within pastoral communities, local definitions of poverty are often based on the ownership of too few or no livestock. Hence, the poorest pastoralists are often people who do not have animals to keep (Catley *et al.*, 1998). The results also indicated that about three-eighths (36%) of respondents were doing both livestock keeping and crop production activities. In Digodigo Village, both livestock and crop production are the main occupations of the community. Due to the existence of farming activities, the number of livestock is relatively small compared to the other two villages studied. In Endulen Village (Ngorongoro Division), agricultural activities are prohibited by the NCAA law.

The community was solely depending on livestock keeping. To get their basic needs, pay for veterinary medicine and other social issues, they have to sell their livestock. During interview with one livestock keeper (name withheld) on the animal health services, he had the following words: "*How is it possible for one to sell only livestock and fulfil his/her requirements? A large number of livestock dies due to lack of services. We remember how Ereto facilitated provision of these services*". Ereto is a name given to a Ngorongoro Pastoralist Project-NPP that facilitated restocking by providing animal health services in Ngorongoro District. Restocking of livestock was among the strategies to empower poor

families and those who had lost their livestock following drought in 1997. The project also contracted and facilitated private veterinarians to provide animal health services to the recipients and the community as a whole.

4.2.2 Source of income

The results (Table 3) show that about two-thirds (64.8%) of the interviewed respondents depended on livestock keeping to generate income. Pastoralists in Endulen village depended exclusively on their livestock (28.0% of all respondents) to earn income. No agricultural activities are allowed under the NCAA law. Livestock were sold in livestock markets within and outside the district. Other informal livestock markets were in Kenya, particularly at Ormiti, Posumoru, and Ngong’.

About one-thirds (of respondents in Digodigo village relied on selling crops products to earn income. In Magaiduru village though there were small crop plots, products from these were not for sale; They were rather for home consumption, unlike Digodigo where income is generated through selling crop products 34.4%), livestock (0.8%) and partly (0.8%) from petty trade.

Table 2: Main occupation and source of income

Main occupation	Village of residence			Total %
	Magaiduru (n=45) %	Digodigo (n=45) %	Endulen (n=35) %	
Livestock keeping	36.0	0.0	28.0	64.0
Livestock and crop	0.0	36.0	0.0	36.0
Total	36.0	36.0	28.0	100.0
Source of income				
Sale of livestock	36.0	0.8	28.0	64.8
Sale of crops	0.0	34.4	0.0	34.4
Business	0.0	0.8	0.0	0.8
Total	36.0	36.0	28.0	100.0

4.3 Animal Health Governance

In order to address objective number one that sought to assess animal health governance, the researcher consulted the District Veterinary Officer (DVO) and animal health services personnel (Director of Veterinary Services-office) whereby the animal health governance structure (Fig. 2) was made available. The hierarchy of animal health governance system starts from the Director of Veterinary Services (DVS) at the ministerial level. Just below the Director of Veterinary Services are Zonal Veterinary Laboratory Agencies, Veterinary Officer-Regional Secretariat (VO-RS), District Veterinary Officers, Livestock Field Officers, Livestock keepers and the Private Sector.

4.3.1 The director of veterinary services (DVS)

The Directorate of Veterinary Services has mandate in disease control, animal disease research, stock route management, veterinary public health, formulation of policies, regulations, guidelines, control of export and import of livestock and veterinary products. The Director of Veterinary Services (DVS) reports directly to the political authority-Permanent Secretary and to the Minister responsible for the ministry of livestock and fisheries.

4.3.2 Zonal veterinary laboratory agencies

The zonal Veterinary Laboratory Agencies are independent organs performing investigation and the surveillance of livestock diseases. The Zonal Veterinary Laboratory Agencies have direct line of communication with the DVS. They are under the Ministry of Livestock and Fisheries.

4.3.3 Veterinary officer-regional secretariat (VO-RS)

There is no direct line of communication between Veterinary Officer (VO-RS) and Director of Veterinary Services. The Veterinary Officer in the Regional Secretariat is under the Ministry of Regional Administration and Local Government Authority. The role performed by VO-RS is to advise the Regional Secretariat of animal health technical aspects. The sub-sector at this level is passive since the line of command ceases due to inter- ministerial convergence (PORALG and Ministry of livestock and fisheries). There is weak linkage between these agencies, and this weak relationship does not let effective flow of information between the two levels. In order to reach the VO-RS, information from the DVS should first pass to the PORALG.

4.3.4 The district veterinary officer

The District Veterinary Officer (DVO) has no direct linkage with the Director of Veterinary Services. The District Veterinary Officer is responsible to the local Government Authority and is given power by the law on all matters concerning animal health services including control, monitoring and surveillance of livestock diseases in his jurisdiction. Despite these roles, Rutabanzibwa (undated) points out that there is a potential lack of cooperation or participation of District Veterinarians and Local Government Authorities, which undermines the effectiveness of the services delivered. Districts' resources are limited and cannot support provision of private good services. Moreover, there are few state veterinarians in districts, almost one per each district who is normally overwhelmed with public good services.

4.3.5 Livestock field officers

This cadre performs all activities related to animal health services under the supervision of the DVO. These include dissemination of new technologies and all advisory services to livestock keepers. These are employees of Local Government Authorities.

4.3.6 The private sector

Parallel to the livestock field officers is the private sector. According to the structure presented, the private sector performs its activities under the supervision of the district veterinary officer who is given power in his jurisdiction. Due to underdeveloped rural infrastructure and remoteness, the sector has not been engaged fully in providing animal health services. This sector operates in economies of scale as pointed out by Umali *et al.* (1992) that entry into the veterinary services market by a private practitioner will depend on whether a practice can be profitably sustained. If a favourable economic environment already exists, private profitability will depend primarily on the type of production system, the prevailing livestock density, and the extent to which economies of scale apply. In this case, the government has no power to push the private sector to perform activities in non-profitable areas.

4.3.7 Livestock keepers

The primary responsible person in making sure that his/her livestock get reasonable services is the livestock owner. Other agents play the role of either supplying inputs or provision of advisory services.

4.3 Animal health governance structure

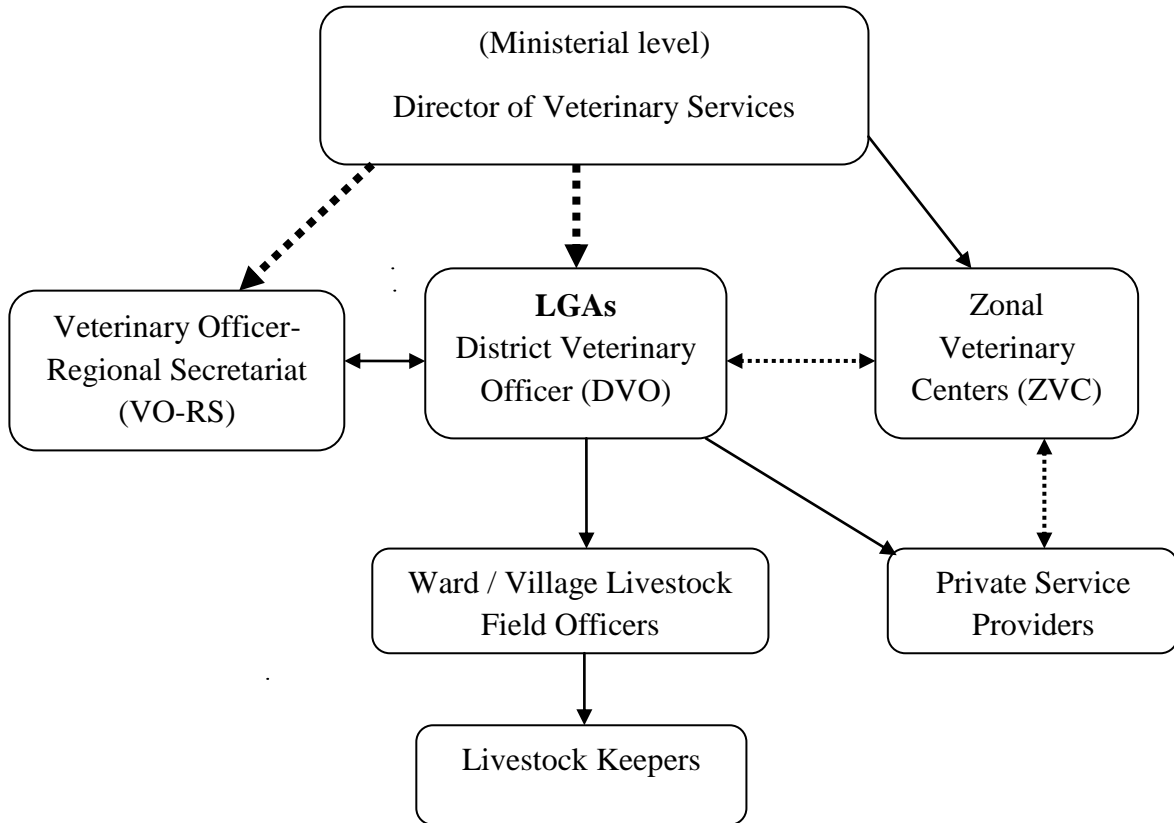


Figure 4: Animal health governance structure in Tanzania

Source: Ministry of Livestock and Fisheries (2013)

4.4 Animal Health Services in Ngorongoro District

In addressing objective number two on the availability of animal health services in the study area the index scale (1 For YES and 0 for NO) was developed to answer six questions asked (Table 6). The overall point scored on animal health services was computed (Table 3).

Table 3: Points Scored for Animal health services by Respondents

Points Scored	Frequency	Percent
0	36	28.8
1	50	40.0
2	32	25.6
3	6	4.8
4	1	0.8
Total	125	100.0

This was grouped into two groups; poor animal health service (0-2) and, good animal health services (3-4) as presented in (Table 4).

Table 4: Respondents Response on the quality of Animal Health Services

Categories of animal health services	Frequency	Percent
Poor animal health services	118	94.4
Good animal health services	7	5.6
Total	125	100.0

The statistics mean, minimum and maximum scores were also computed (Table 5).

Table 5: Statistics

Animal Health Services	Mean	Minimum	Maximum
Is the dip tank working in good condition?	0.64	0	1
Do you access subsidised veterinary drug?	0.5	0	1
Does the government support in vaccination of the disease?	0.01	0	1
Do you afford buying veterinary drugs from the veterinary shop?	0.12	0	1
Do you get animal health services from the livestock field officer?	0.27	0	1
Is there a committee responsible for animal health services in the village?	0.0	0	0

4.4.1 Is the dip tank working?

In the three villages the respondents were asked to tell if the dip tanks were working and in good condition. The research findings showed that in two villages of Magaiduru and Endulen the dip tanks were in good condition and working. All respondents (100%) from Digodigo village mentioned that they even have no dip tank structure in their village. According to URT (2010), in Tanzania although 816 daps have been rehabilitated and 264 constructed between 2005 and 2009 and handed over to LGAs, only a very small fraction

is being utilized countrywide and as a result close to 30-40% of calves die each year due to mainly preventable vector borne diseases (ECF and trypanosomiasis).

4.4.2 Access to subsidies

The respondents were required to reply to the question if they had access to subsidised veterinary drugs supplied by the private sector. The results (Table 5) indicate that 88.9%, 97.8, 100% respondents from Magaiduru, Digodigo and Endulen respectively answered negatively. In relation to this study, Ahuja (2000) points out that ability of the state to target subsidies and to manage the delivery systems through the private sector in poor marginal areas is weak, and there are significant leakages and, that a large part of the subsidy in the delivery of veterinary services does not reach the service users. For this matter livestock keepers not necessarily benefit the subsidies. This is an indication that according to Ahuja *et al.* (2001), the supply chain is inefficient, and livestock keepers perceive that elements of corruption are inevitable.

4.4.3 Does the government support in vaccination of the disease?

Respondents were required to indicate whether the government supports vaccination against the disease. The total score for No was 99.2% that the government does not support vaccination against East Coast Fever. According to the Ngorongoro DVO, the contribution of the district council to livestock services is small despite livestock being the main economic activity in the district. The intention of the Livestock Development Fund (LDF) is to complement the budget constraints of the sub-sector. Activities which have been performed previously by the LDF include facilitating ECF immunisation and vaccination for rabies in dogs. Since 2010 the LDF has not received any amount from the district council. These findings are supported by Pica-Ciamarra (2010) who concluded as follows: "*Limited or dwindling government budgets make it*

difficult, if not impossible, for livestock departments to provide good-quality animal health services and veterinary supplies in rural areas". The situation is reported also by URT (2010) that Decentralization may represent a way to raise the efficiency of public services because it brings decision-making closer to users. IFAD (2004) puts more emphasis that decentralized public services may therefore be more effective than centralized services only if the responsibility is also decentralized to local authorities that in turn are responsible to local stakeholders.

4.4.4 Affordability to buy veterinary drugs from veterinary shops

The results show that 88.0% of respondents do not afford to buy veterinary drugs from veterinary shops. The results showed that in all the three villages there were few veterinary shops where livestock keepers used to buy veterinary drugs. These were concentrated in small market centres where other commodities are found. Unqualified individuals and or Livestock Field Officers stepping on one leg run small shops with curative veterinary medicine. The government has in previous years been carrying out vaccination programmes against some contagious livestock diseases for example Contagious Bovine Pleural Pneumonia (CBPP), Rift Valley Fever (RVF), and Pest des Petite Ruminant (PPR). Due to severely constrained budget the vaccination is not carried regularly. The most livestock killer disease is East Coast Fever (ECF), especially for calves, has it's vaccine that is unaffordable by livestock keepers.

4.4.5 Provision of animal health services by LFOs

Respondents were asked if they had been being provided with veterinary services by livestock field officers. The results (Table 5) show that 72.8% of the respondents had not received the services at all. The reasons given by livestock keepers include shortage of extension officers in the village. Livestock keepers, therefore, are forced to meet their

needs through medicines which are available in weekly markets and often have to draw upon the services from personnel with limited technical competence. Either they mentioned Community Animal Health Workers (CAHWs) to have been a useful tool near the livestock keepers. The usefulness of CAHWs have been reported by Allport *et al.* (2005) that CAHWs has been providing useful clinical services in Tanzania for many years despite their non-recognition by legislation. A study conducted by JICA (2008) supports the argument that the biggest and most fundamental problem in terms of the efficiency of service delivery is the categorically insufficient number of LFOs assigned to the local administrations.

According to the Ngorongoro DVO, the Tanzania-Denmark bilateral project-Ngorongoro Pastoralist Project-NPP attempted to train CAHWs and facilitate them with veterinary kits as a motivation in order to provide basic animal health services in the community. The project also contracted private veterinarians to serve pastoralist communities in Ngorongoro and Sale divisions. In 2009, the project phased out, and the only two veterinarians that were working in the District under the auspices of the project left due to lack of support creating a gap on the animal health services provision. However, unqualified individuals and or LFOs stepping on one leg run small shops with curative veterinary medicine.

4.4.6 Is there a committee responsible for animal health services in the village?

From the research findings (Table 5) all respondents (100%) mentioned that there were no committee responsible for animal health services in the respective villages.

Table 6: Animal health services

Availability of Animal health services in Ngorongoro District		Villages of residence		
		Magaiduru (n=45) %	Digodigo (n=45)%	Endulen (n=35) %
Is the dip tank working?	Yes	100.0	0	100.0
	No	0.0	100.0	0.0
Total		100.0	100.0	100.0
Do you access subsidies?	Yes	11.1	2.2	0
	No	88.9	97.8	100.0
Total		100.0	100.0	100.0
Since ECF had caused high mortality of calves, does the government support in vaccination of the disease?	Yes	0	0	2.9
	No	100.0	100.0	97.1
Total		100.0	100.0	100.0
Do you afford to buy veterinary drugs from the veterinary shop?	Yes	8.9	11.1	17.1
	No	91.1	88.9	82.9
Total		100.0	100.0	100.0
Access to animal health services (Do you get animal health services from the livestock field officer?)	Yes	48.9	6.7	25
	No	51.1	93.3	74.3
Total		100.0	100.0	100.0
Is there a committee responsible for animal health services in the village?	Yes	0	0	0
	No	100.0	100.0	100.0
Total		100.0	100.0	100.0

4.5 Governance Related Factors Affecting Delivery of Animal Health Services

In order to address objective three on governance related factors affecting delivery of animal health services, an index scale was developed, and the respondents were asked to indicate 1 for YES and 0 for NO against eight indicators of governance (Table 7) namely; Accountability (If hearings of complaints submitted to the village committee and measures are taken), Transparency (Publishing annual plans and budget, posting on notice boards in dissemination of information and distribution of subsidies), Responsibility (If Livestock field officers attend cases when called by livestock keepers), Equity in the distribution of resources for example; land and subsidies, Effectiveness (Provision of services to livestock keepers), Rule of law (Enforcement of Rules of Act for Prevention and Control of Transmissible Animal Disease) Participation in livestock related activities

in village level planning and Consensus oriented (Decision making by all members of the community).

4.5.1 Lack of accountability: (hearings of complaints submitted to the village committee and measures are taken)

More than-seven eighths (88.0%) mentioned accountability as one among factors affecting animal health services. IFAD (2004) argues that delivery systems that make service providers accountable to the users and give the users a free choice among providers will enhance the power of the poor livestock keepers to negotiate and demand appropriate quality services. WHO (2011) opines that accountability cannot be enforced without transparency and the rule of law. Government officials and bureaucrats are accountable to their conduct and performance. In other words, Malena *et al.* (2004) concluded that public officials can and should be held accountable to obey the law and not abuse their powers, and serve the public interests in an efficient, effective and fair manner.

4.5.2 Lack of transparency (Poor dissemination of information, implementation of projects and distribution of subsidies)

More than nine-tenths (96%) of the respondents mentioned that there was lack of transparency among public servants who collaborate with the private sector during implementation of development projects, for example construction of charco-dams and other livestock infrastructures. Mode *et al.* (2010) support the argument pointing out that service recipients feel that the modality and the procedures of service delivery are not transparent, and sometimes are even discriminatory such as services being provided to relatively well-off people, and to those who command respect in the local society.

4.5.3 Lack of responsibility by livestock field officers to livestock keepers in the delivery services

These results show that 97.6% of respondents responded YES to the statement that “lack of responsibility by livestock field officers to livestock keepers in delivery services” is among the factors that affect animal health services. These findings comply with that of Schelling *et al.* (2008) that lack of service delivery to pastoralists is widely acknowledged to be one of the most evident processes of marginalization and exclusion by governments and policy makers. Mack and Fernandez-Baca (1993) argue that Government policy usually dictates priorities and resource allocation where livestock production usually takes a second place to the food and cash crop sectors, and that Government policies, however, do not necessarily reflect the priorities of pastoralist. It is not easy for extension service to convince a farmer to adopt practices which are unlikely to contribute to either increased income or fulfill a specific perceived need. Extension cannot coerce people to do things they do not wish to do. The public sector may take the responsibility for supporting the development of private service systems in areas where these may not be immediately profitable, for example, in market development. The public sector might also take a proactive role in areas where social concerns make public intervention necessary for the establishment of equitable access to services. Taking responsibility in this sense means providing the enabling environment and sometimes supplying funding through private organizations.

4.5.4 Lack of equity in the distribution of resources

IFAD (2004) reports that despite the fact that cattle have for centuries been a natural part of the ecology of the savannah and that all anthropological studies confirm that the Maasai and the wildlife population live in a mutually beneficial coexistence, most conservation programmes still undermine pastoralists. IFAD (2004) argues that restricted

access to natural resources such as grazing, water and lack of access to markets make pastoralists vulnerable to drought, terms of trade, political instability, and poor access to markets, technologies and innovations. Increasing numbers of pastoralists have lost most of their livestock, due to pressure on land resources leading to restrictions in mobility in search for pastures and water. Rugadya *et al.* (2005) declared that limited access to land and water or insecure resource rights had been mentioned as a hindering factor in the provision of animal health service.

4.5.5 Efficiency and effectiveness (unfair and inconsistent legal system and incorrectly prioritizing government services with citizen needs)

Since animal health services are inadequate in pastoral areas, 95.2% of respondents mentioned lack of efficiency and effectiveness as among factors affecting the provision of animal health services. Afonso *et al.* (2006), quoted by Mimicopoulo (2007), emphasizes that: “*efficiency is brought about by an economically efficient system of production and distribution as well as a fair and consistent legal system and correctly prioritizing government services to correspond with citizen needs*”. Effectiveness in the control of trans-boundary diseases and disease surveillance depends largely on harmonized approaches and strategies (Rutebarika *et al.*, Undated).

4.5.6 Rule of law (failure to enforce rules of act for prevention and control of transmissible animal diseases)

Ninety six point eight percent (96.8%) of the respondents mentioned that there was weak implementation of rule of law especially in the Prevention and Control of transmissible animal disease. Good governance requires fair legal frameworks that are enforced impartially. If governments and stakeholders don't take decisions and their enforcement in a manner that follows rules and regulations especially in control measures, eradication

of epizootic and zoonotic diseases will not be successful. Information must be freely available and directly accessible to those who will be affected by such decisions and their enforcement (United Nations, 2007).

4.5.7 Lack of participation in livestock related activities in village level planning

Respondents were asked if they were participating in planning livestock related activities at the village level, 97.6% mentioned that they were not participating in most decision making sessions pertinent to animal health services and therefore lacked relevant information. In many countries, pastoralist communities have limited voices in policy debates compared to more settled agricultural groups and urban populations (Nelen *et al.*, 2012).

In an interview with the Ngorongoro DVO on how the community participated in planning and decision making processes, he stated that the Opportunity and Obstacles in Development (O and OD) exercise is conducted only once annually with a limited capacity due to insufficient financial support. The latest was conducted in 2010. Given room for participation, Cartley (1998) argued: “indigenous pastoral institutions are often well organised and can be effective and democratic decision-making units. Traditionally, animal health related issues (such as movements to specific grazing areas) are already discussed in these traditional forums”. Projects that encourage types of community participation such as interactive participation and self-mobilisation are most likely to result in sustained benefits for livestock keepers (Catley *et al.*, 2001). Delivery systems that make service providers accountable to the users and give the users a free choice among providers will enhance the power of the users to negotiate and demand appropriate quality services. National and international NGOs can be effective service providers if

poor livestock keepers participate in the definition of needs and the design of activities (IFAD, 2004).

4.5.8 Consensus oriented (Decision making by all members of the community)

Ninety two percent (92.0%) of the respondents (Table 7) mention that they didn't participate in decision making and planning of development issues.

Table 7: Positive responses on Governance related factors affecting animal health services

Positive responses on Governance related factors	(n=125)	Percentage
Accountability: Hearings of complaints submitted to the village committee and measures are taken)	110	88.0
Transparency: Publish annual plans and budget, posting in notice boards in dissemination of information and distribution of subsidies	120	96.0
Responsibility by Livestock field officers to livestock keepers in the delivery services	122	97.6
Equity in the distribution of resources for example; land and subsidies	116	92.8
Effectiveness (Provision of services to livestock keepers)	119	95.2
Rule of law (Enforcement of Rules of Act for Prevention and Control of Transmissible Animal Disease)	121	96.8
Consensus oriented (Decision making by all members of the community)	115	92.0

4.6 Association between Animal Health Governance Factors and Animal Health Services

To address the first hypothesis, the association existing between animal health governance factors and animal health service was analysed using a Chi-square test to determine whether there was significant association between animal health governance and animal health services (Table 9). An index scale (1 For YES and 0 for NO) was developed. The minimum and maximum was zero to three score points respectively. The overall points scored on governance factors were computed and then grouped into two categories (0-1=poor governance and 2-3=good governance) On the basis of the scale, the higher the points scored the better the governance and the lower the points scored the poorer the governance (Table 8).

Table 8: Points Scored for Animal Health Services

Points Scored	Frequency	Percent
0	90	72.0
1	26	20.8
2	6	4.8
3	3	2.4
Total	125	100.0

4.6.1 Equity

The results (Table 10) revealed that, there was significant association between equity and animal health services $\chi^2 = 6.085$ ($p < 0.05$). Where there was equity there was improvement in the provision of animal health services.

4.6.2 Consensus oriented

The findings also reveal that there was significant association between consensus oriented and animal health services $\chi^2 = 4.264$ ($p < 0.05$). Contrary to this finding, IFAD (2013) argued that, despite the consensus that improved access to appropriate livestock inputs and support services is essential for the improvement of livestock productivity; the delivery of animal health services in developing countries is generally poor. However, governance factors collectively, if implemented are essential in the delivery of animal health.

However the results (Table 9) show that there was no significant association between other governance factors and animal health services $p > 0.05$. This is contrary to the study done by Msellati *et al.* (2012) confirming that good veterinary governance assumes the provision of veterinary services that are sustainably financed, universally available, and provided efficiently without waste or duplication, in a manner that is transparent and free of fraud or corruption. The association exists only if there will be effective use of financial and human resources to deal with disease control, therefore it is important to understand the economic, social and governance factors that may affect the success and impact of control measures. Governance factors need to be implemented collectively because they are dependent on each other.

Table 9: Association between Governance factors and animal health services

Governance factors	Categories of animal health services		χ^2	P-Value
	Poor animal health services %	Good animal health services %		
Views that there were no Accountability	95.5	4.5	2.250 ^{ns}	0.134
Views that there were Accountability	85.7	14.3		
Views that there were no Transparency	94.2	5.8	0.245 ^{ns}	0.621
Views that there were Transparency	100.0	0.0		
Views that there were no Responsibility	94.4	5.6	0.245 ^{ns}	0.807
Views that there were Responsibility	100.0	0.0		
Views that there were no Equity	95.7	4.4	6.085*	0.014
Views that there were Equity	75.0	25.0		
Views that there were no Efficiency	94.3	5.7	0.182 ^{ns}	0.669
Views that there were Efficiency	100.0	0.0		
Views that there were no Rule of law	95.0	5.0	2.942 ^{ns}	0.086
Views that there were Rule of law	75.0	25.0		
Views that there were no Participation	94.3	5.7	0.182 ^{ns}	0.669
Views that there were Participation	100.0	0.0		
Views that there were no consensus oriented	95.7	4.3	4.264	0.039
Views that there were consensus oriented	80.0	20.0		

*= Significance level (0.05)

ns = No significance

4.7 Mortalities of Livestock in Relation to Governance Factors

To address the second hypothesis “Livestock mortality does not differ significantly when governance factors hold differently” the T-test (Table 10) was used to compare the means of two independent random samples namely; mortalities of livestock and Governance factors. The overall points scored on Governance factors was computed then grouped into two categories with those scoring lower and higher points as unfavourable and favourable respectively. A total number of livestock died, mean, minimum and maximum were computed. The results indicated that there was significant difference on the mortality of livestock with governance factors holding differently F-test 25.622 ($P < 0.05$). Therefore, we reject the null hypothesis and confirm alternative hypothesis.

Table 10: Points Scored for Governance Indicators

Points Scored	Frequency	Percent
0	37	29.6
1	39	31.2
2	10	8.0
3	28	22.4
4	8	6.4
5	2	1.6
6	1	0.8
7	0	0.0
8	0	0

Table 11: Categories of Governance indicators

Categories of Indicators	Frequency	Percent
Favourable (6-8)	11	8.8
Unfavourable (0-5)	114	91.2

Table 12: T-test to compare Governance Factors and Mortality of Livestock

Test Variable	Groups of Governance Factors	F-Test	P-Value
Total number of livestock died	Unfavourable and Favourable	25.622	0.000

4.8 Attitude of Respondents towards Governance Factors

A Likert scale was used to determine attitude of respondents towards governance of animal health. Five categories (1=strongly disagree, 2= disagree, 3= undecided, 4= agree and 5=strongly agree) were used to capture the opinions of the respondents. The five categories were further reduced to three sub- categories (disagree for strongly disagree and agree, undecided and agree for strongly agree and agree) to measure positivity and negativity towards animal health governance (Table13). The results show that 84.8% of respondents had negative attitude towards animal health governance, 8% had positive attitude while 7.2% had neither positive nor negative attitude. As early mentioned, 92% of respondents confirmed that they had never been visited by LFOs for the whole period of 2012. This is probably a result of few numbers of the staff in the area caused by poor allocation of manpower equitably. Animal health governance is responsible for influencing adequate provision of these services. Either all respondents had negative views regarding availability of veterinary drugs (100%), vaccination of livestock disease outbreaks (100%); 99.2% showed negative attitude on the responsiveness livestock personnel in attending disease cases, 97.6 with negative attitude on reporting of disease outbreaks. Other areas which were perceived negatively include accessibility to subsidies (95.2%), efficiency of private in providing animal health services (100%), affordability to purchase veterinary drugs (93.6%), participation of stakeholders in livestock disease control (81.6%) and imposition of quarantine in reducing transmission of livestock diseases (100%).

However, respondents showed positive attitude towards need to review livestock policy 66.4% Animal health governance can influences formulation of livestock policy (80.8%), livestock policy can influence animal health governance in the planning and improvement of animal health services (93.6%), Community Animal Health Workers are important (90.4%).

Table 13: Attitude of Respondents towards Animal Health Governance

Animal Health Governance	Disagree (%)	Undecided (%)	Agree (%)
Assurance in the availability of veterinary drugs	100.0	0.0	0.0
Vaccination of livestock disease outbreaks	100.0	0.0	0.0
Responsive Livestock personnel	99.2	0.0	0.8
Reporting of disease outbreaks	97.6	2.4	0.0
Accessibility to subsidies	95.2	4.8	0.0
Efficient Private sector	100.0	0.0	0.0
Affordability to purchase veterinary drugs.	93.6	2.4	4.0
Participation of stakeholders in livestock disease control	81.6	0.0	18.4
Imposition of quarantine reduced transmission of livestock Diseases	100.0	0.0	0.0
Need to review livestock policy	29.6	4.0	66.4
Animal health governance can influences formulation of livestock policy	4.8	14.4	80.8
Community Animal Health Workers are important	6.4	3.2	90.4
Availability of by-laws in the village	6.4	1.6	92.0
Attitude	Percent		
Those with negative attitude	84.8		
Those with neutral attitude	7.2		
Those with positive attitude	8.0		
Total Score	100.0		

4.9.1 Weaknesses of animal health governance

From the analysis on animal health governance it can be interpreted that there is unclear and possibly weak chain of command within the system. Pastoret *et al.* (2011) argue that animal health governance system has weakened the concept of a national strong chain of command and the involvement of public sector veterinarians in private sector service activities (clinics), and hence led to a reduction in the effectiveness of the Veterinary Services in terms of controlling outbreaks of contagious diseases because of reduction in early detection, notification and rapid response activities. Pastoret *et al.* (2011) also added that implementation of these public and animal health tasks requires efficient nationwide organisation, which relies on all veterinary structures and practitioners, as well as any persons acting under their authority.

In Tanzania the administrative function of animal health services is under two ministries; Ministry of livestock Development and Fisheries and the Ministry of Regional Administration and Local Government Authority. Under this system neither the former nor the latter has clear and transparent chain of command with regard to provision of animal health services although it was expected that the latter could take care of these service. Mack *et al.* (Undated) point out that; this is due to maladministration, poor line-management and programming, often compounded by regular restructuring of ministries, provincial and local administrations. The problems inherent in public sector service provision were a main reason for the drive towards reforms. The various programmes include the privatization in the 1980s, Economic Recovery Programme One (ERP I) in 1986, ERP II, Economic and Social Action Plan (ESAP) and the Priority Social Action Plan (PSAP) in 1989. Ilukor and Birner (Undated) point out how both central and local governments fail to supervise veterinarians and other staff from their duty stations to visit their clients. Rutebarika *et al.* (Undated) conclude that animal health governance needs a

veterinary structure that allows smooth reporting and effective information flow from ground to top level.

However, other governance challenges of private service provision have been underestimated, as the experience of the privatization reform has shown. Substantial market failures arise due to high travel costs of serving livestock keepers in marginal areas, especially pastoralists. The cash constraints faced by those farmers aggravate the problem. The challenge of information asymmetry mentioned above also applies to private animal service providers. Hence, substandard service provision may also apply to this case. Leonard (2000), quoted by Ilukor and Birner (Undated) has documented that private veterinarians who sell veterinary drugs also face a conflict of interest or adverse selection and moral hazard problem, as they may be inclined to sell substandard or non-essential drugs.

4.9.2 Improving animal health governance

Borrowing from the above animal health governance structure the following institutional arrangements are suggested in this study: A decentralized government system, an integrated system that links government veterinarians with other actors, trained veterinarians and paraprofessionals. Paraprofessionals system composed of mainly of Community Animal Health Workers (CAHWs) and Animal Health Assistants (AHAs). CAHWs do not have any formal training in animal health and are found mainly in marginal areas. Animal Health Assistants are service providers with one or two years formal training in animal health or general agriculture.

These governance structures differ in terms of costs, accessibility and quality of service offered. Ilukor and Birner (Undated) applying Williamson's alignment hypothesis to this area, suggests that veterinary services that differ in their characteristics should be aligned with institutional arrangements or governance structures, which differ in costs and competencies, so as to yield transaction cost economizing results. The sufficient condition requires that governance and contextual factors together with market failure should be considered in analysing institutional arrangements for providing animal health services.

CHAPTER FIVE

5.0 CONCLUSION AND RECOMMENDATIONS

The specific objectives of the research were: to analyse animal health governance system; to assess animal health services in the study area; and to determine governance related factors affecting delivery of animal health services in pastoral areas. The conclusions based on the findings meeting the specific objectives of the research are presented in this chapter, section 5.1 in terms of lesson learnt from the findings, and the recommendations derived from the conclusions are presented in section 5.2.

5.1 Conclusions

It was found that there was an unclear chain of command within animal health governance. On the basis of these findings, it is concluded that there is weak animal health institutional framework. Therefore, there is a need to improve the chain of command within animal health governance.

Another important finding was that animal health services in Ngorongoro District are scarcely available due to poor governance towards improving infrastructure. This problem of poor infrastructure has resulted into high animal health delivery costs and created un-conducive environment for qualified vets in the public and private sectors to live in these areas due to physical remoteness. In accordance with this finding, it is concluded that improvement of animal health services is crucial for the development and wellbeing of pastoralists.

Another finding was that governance factors had affected the delivery of animal health services in Ngorongoro District. These include poor accountability, Transparency, responsibility, equity, effectiveness, rule of law, participation, and consensus oriented.

In view of the finding that animal health governance factors are not significantly associated with animal health services, it is concluded that there is significant association between animal health governance and animal health services. Where there is better animal health governance there is better animal health services.

From the finding that mortalities of livestock were significantly different in places where governance factors were different, it is concluded that livestock mortalities are fewer in places with better animal health governance than in places with poor animal health governance.

Finally, it is concluded that consideration of governance and contextual factors offer far-reaching insights into animal health service delivery.

5.2 Recommendations

In view of the above conclusions, the recommendations given below are worth heeding in order to improve animal health services through improvement of animal health governance.

5.2.1 Recommendations to policy makers at National level

The study recommends that policy makers need to create an enabling institutional environment at state level that is sensitive to the specific needs and constraints of pastoralists. This means there is a need to formulate a system that has a direct chain of

command from the highest level to the bottom contrary to the current situation whereby in Tanzania the administrative functions of animal health services are under two ministries; the Ministry of livestock Development and Fisheries and the Ministry of Regional Administration and Local Government Authority. Under this system neither the former nor the latter has clear and transparent chain of command with regard to provision of animal health services, although it was expected that the latter would take care of these services. This has resulted into maladministration, poor line-management and programming often compounded by regular restructuring of ministries, provincial and local administrations. The ability to monitor and conduct surveillance of the health of livestock and veterinary drugs can be feasible if veterinary services are enabled by sound policy and strategies.

5.2.2 Recommendations to Local Government Authority

The study recommends that policy makers need to create an enabling institutional environment at village levels and also provide them with space and authority for decision making. Therefore, services must use delivery mechanisms that promote the definitions of priorities and needs expressed by the poor livestock keepers and take into account grassroots issues in the formulation of policy and by-laws to address them.

Another recommendation is that LGAs should continue supporting Livestock Development Fund (LDF) that will help facilitate disease surveillance and monitoring activities.

5.2.3 Recommendation to Development partners

Since pastoralists live in marginalised areas with deprived public services, it is recommended that modalities be made to facilitate the private sector to provide animal health services in those areas.

5.2.4 Recommendation to pastoralists and other community members

The study recommends that pastoralists and other community members should form groups and organisations that can lobby for their needs to the higher level policy making organs.

5.3 Recommendation for Further Research-Limitation

It is recommended that there is a need to undertake further research on the governance in order to generate more information that will be used to formulate appropriate policy relevant to animal health services provision in pastoral areas and to a larger part of the country.

REFERENCES

- Ahmed, I. Lipton, M. (1997). *Impact of Structural Adjustment on Sustainable Rural Livelihoods: A Review of the Literature*. IDS Working Paper No. 62. Institute of Development Studies and Poverty Research Unit, University of Sussex. 5pp.
- Ahuja, V. (2000). *Agricultural Services and the Poor: Case of Livestock Health and Breeding Services in India*. The World Bank, Washington. DC. 14pp.
- Abuja, V. and Redmond, E. (2001). *Economic and Policy Issues in Livestock Service Delivery to the Poor*. Background paper for the FAO project memorandum Pro-Poor Livestock Policy Initiative. Fostering the Policy Dialogue in Support of Equitable, Safe and Clean Livestock Farming. Center for Management in Agriculture, 14pp.
- Allport, R., Mosha, R., Bahari, M., Swai, E. and Catley, A. (2005). *The Use of Community Based Animal Health Workers to Strengthen Disease Surveillance*. Pan African Programme for the Control of Epizootics, Dar es Salaam. 928pp.
- Ashley, S.D., Holden S.J., and Bazeley, P.B.S. (1996). *The Changing Role of Veterinary Services: A Report of a Survey of Chief Veterinary Officers' Opinions*. Livestock in Development. 2pp.

- Bailey, K.D. (1994). *Methods of Social Research*. (4th Edition), The Free Press, New York. 478pp.
- Bett, B., Jost, C. Mariner, J. (2008). *Participatory Investigation of Important Animal Health Problems amongst the Turkana Pastoralists: Relative incidence, impact on livelihoods and suggested interventions* Research report in support of the Vétérinaires Sans Frontières Belgium's, Discussion Paper No. 15. International Livestock Research Institute, Addis Ababa, Ethiopia. 17pp.
- Brinkerhoff, D. W. and Johnson, R. W. (2008). *Good Enough Governance in Fragile States: The Role of Center-Periphery relations and local government*. Presented Paper No. 3. London, 4pp.
- Brückner, G. (2008). The role of good veterinary governance for harmonisation of the registration, distribution and quality control over veterinary medicinal products in Africa. *OIE Conference on veterinary medicinal products in Africa, Dakar, 25 - 27 March 2008*. 2pp.
- Carrington, W., DeBuse, J. and Lee, H. (2008). *The Theory of Governance and Accountability*. The University of Iowa Center for International Finance and Development. New York. 10pp.
- Catley, A. Leyland, T. (2001). Community participation and the delivery of veterinary services in Africa: *In Preventive Veterinary Medicine, 49, Issues 1-2, 13 April, 95-113*

Catley, A., McCauley, H. M. and Delaney, P. D. (1998). *Community-based Animal Health Services in Greater Horn of Africa: An assessment of USAID Office of Foreign Disaster Assistance in cooperation with US Department of Agriculture Famine, Migration, Activity*. OFDA/USAID, Washington, DC. 64pp.

Chief, Y. K. S. (Undated). What Is good governance? Poverty reduction section United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP), Bangkok [<http://www.unescap.org/pdd/prs/projectactivities/ongoing/gg/governance.asp>] site visited on 4/6/2012.

Cheneau, Y., El Idrissi, A.H. and Ward, D. (2004). An assessment of the strengths and weaknesses of current veterinary systems in the developing world animal health service, animal production and health division, FAO Rome. *Science Technology Office International Epizootic* 23(1): 351 – 359.

Cheneau Y. (1999). The effect of structural adjustment programmes on the delivery of veterinary services in Africa. 13th *Conference of the Regional Commission of the OIE World Organisation for Animal Health for Africa*, 26 – 29 January, Dakar, 7pp.

Coker, R. J., Hunter, B. M., Rudge, J. W., Liverani, M. and Hanvoravongchai, P. (2011). Emerging infectious diseases in Southeast Asia regional challenges to control. *The Lancet Journal* 377: 199 – 609.

Connor, R. J. (2009). *Mobile Pastoral Systems and International Zoosanitary Standards Devising A Compatible Approach*. Humanitarian Policy Group. Overseas Development Institute, London. 26pp.

Downie, K. (2011). A Review of Good Practice and Lessons Learned in Programming for ASAL Populations in the Horn of Africa. UNESCO, Geneva. 3pp.

Enticott, G. (2011). The changing role of veterinary expertise in the food chain. *Philosophical Transactions Research Society* 12(366): 1955 – 1965.

FAO (2002). EMPRES Trans-boundary animal diseases. [www.fao.org/empres] site visited on 21/08/2012.

FAO (2002). *Improved Animal Health for Poverty Reduction*. Animal production and Health Paper No. 153. Animal Production and Health Division. FAO, Rome. 15pp.

Grindle, M. (2008). Good Governance: The inflation of an ideal governance: *An International Journal of Policy, Administration, and Institutions* 17(4): 55 – 548.

Heath, J. (2004). Stakeholder theory, corporate governance and public management what can the history of state-run enterprises teach us in the post-Enron era? *Journal of Business Ethics* 53: 247 – 265.

- Holden, S., Ashley, S., Bazeley, P. (1996). *Report on the Overseas Development Administration*. Livestock in Development, United Kingdom. 3pp.
- IFAD, DANIDA, World Bank, DAAS (2004). *Livestock services and the poor: A global initiative Collecting, Coordinating and Sharing Experiences*. University of Reading and national institutions, Denmark.56pp.
- Ilukor, J. and Birner, R. (Undated). *Addressing Governance Challenges in the Delivery of Animal Health Services: A transaction Cost Approach*. *Institute of Agricultural Economics and Social Sciences in the Tropics and Subtropics*. University of Hohenheim. Berlin. 3pp.
- International Fund for Agricultural Development-Ifad (1999). *Good Governance: An Overview*. The World Bank Group, Rome. 2pp.
- International Fund for Agricultural Development (2004). *Livestock services and the poor*. Ugo Quintily S.p.A, Rome.48pp..
- JICA (2008). *Decentralised Service Delivery in East Africa: A Comparative Study of Uganda, Tanzania and Kenya*. Research Group. Japan International Cooperation Agency, Tokyo. 46pp.
- Kayunze K. A., Mashindano, O., Maro, F. (2011). *Poverty Mobility in Tanzania and Linkages with Governance*. Working Paper No. 206. Morogoro. 8pp.

- Kickbusch, I. and Gleicher, D. (2012). *Governance for Health in the 21st Century*. WHO Regional Office for Europe, Copenhagen. 7pp.
- Kipuri, N. and Sorensen, C. (2008). *Poverty, Pastoralism and Policy in Ngorongoro. Lessons Learned from the ERETO I Ngorongoro Pastoralist Project with implications for pastoral development and the policy debate*, ERETO/IIED. Russell Press. 15pp.
- Land, G., Steffensen, J. and Naitore, H. (2007). *Local Level Service Delivery, Decentralisation and Governance: A comparative study of Uganda, Kenya and Tanzania education, health and agriculture sectors*. Fund for Agricultural Development, Rome. 43pp.
- Land, G., Steffensen, J., and Naitore, H. (2008). *Local Level Service Delivery, Decentralisation and Governance: A Comparative Study of Uganda, Kenya and Tanzania, Education, Health and Agriculture Sectors Research Group*. Japan International Cooperation Agency, Tokyo. 17pp.
- Mack, S. D. and Fernandez-Baca, S. (1993). *Strategies for effective extension services to guide the advancement of animal agriculture in developing countries*. FAO Animal Production and Health Paper 107. FAO, Rome.
- Merry, S. E. (2011). Measuring the world indicators, human rights, and global governance. *Current Anthropology* 52: 3 – 83.

- Melewas, J. N. and Ole-Lengisugi, N. M. (2001). *A Survey of Community-Based Animal Health Service Projects and Programmes in Tanzania*. Ministry of Water and Livestock Development, Tanzania and Animal Health Services Project, Veterinary Investigation Center, Mwanza, 34pp.
- Melewas, J., Bakunama, C., Rwamirama, B., Ngowi, N., Nuru, H. and Lynen, L. (2010). *Improving Animal Health Services in Africa*. Arusha, 3pp.
- Mimicopoulos, M. G., Kyj, L., Sormani, N., Bertucci, G. and Qian, H. (2007). *Public Governance Indicators: A Literature review*. University of Texas United Nations, New York. 6pp.
- Mlangwa, J. E. D., Kimera, I. E. and Magayane, F. T. (2008). Veterinary paraprofessionals and community animal health workers in Tanzania. *Tanzania Veterinary Journal* 25(2): 121 – 125.
- Mode, S. and Laitpur, (2010). An Assessment of the Present Status of the Service Delivery: A Policy Brief. Association of District Development Committee, Nepal. 3pp.
- Mpelumbe I. S., Mbwille, H. E. A. and Sinare, S. Y. (1997). Prospects of veterinary practice and employment of veterinarians in Tanzania. *Proceedings of the Workshop to Mark 20 Years of the Bachelor of Veterinary Medicine Degree Program held in Morogoro, Tanzania, 13 – 14 May 1997*. pp. 24-26.

- Msellati, L., Commault, J. and Dehove, A. (2012). Good governance and financing of efficient veterinary services. 31: Review Scientific technical Office of International Epizootic, pp. 2 – 13.
- Mugunier, L. G., Omiti, J. M. and Irungu, P. (2002). *Animal Health Service Delivery Systems in Kenya's Marginal Areas under Market Liberalization: A case for community based animal health workers 2020 vision network for East Africa* Report No. 3. Nairobi. 34pp.
- Mukami. P. (2003). *Review of the Agriculture Sector Recommendations on Major Problems and Bottlenecks Impeding Investments in the Sector*. TNBC Agriculture Investors Round Table Working Group, Nairobi. 21pp.
- Musyoka, J. M. (2005). *Report on Capacity Needs Assessment on Community Based Organisations, Ngorongoro District Council*. Ngorongoro Pastoralist Project, Arusha. 2pp.
- Nelen, J. Klinken, R. and Mwangi, W. (2012). *Improved Livelihoods for Pastoralists*. SNV Netherlands Development Organisation. The Hague, SNV Practice Brief Issue, 2. 2pp.
- Nora, Y. Ngand, R. J. P. (2011). Global health governance as shared health governance. *The Journal of Epidemiology and Community Health* 3: 1 – 2.

F. O. Okwiri, J. K. Kajume, R. K. Odondi Private Animal Health Service Delivery in Pastoral Areas of Kenya. Pan African Programme for the Control of Epizootics, Nairobi. 49pp.

Ole-Neselle, G. and Loomu, P. L. (undated). *The Status of Access to Animal Health Service in Ngorongoro District: Stakeholders' consultations Report*. Rules, policies and institutions theme one: General policy, Legislation and institutional issues Ministry of Water and Livestock Development, Arusha. 11pp.

Pastoret, P.P. Chaisemartin, D. (2011). The importance of governance and reliable veterinary certification, World Organisation for Animal Health, Paris. 348pp.

Peace, T. R. (2012). *Governance of Veterinary Services in Africa*. ALive General Assembly, Nairobi. 3pp.

Pica-Ciamarra, U., Otte, J. C. and Martini, C. (2010). *A Menu for Practitioners: In Livestock Sector Policies and Programmes in Developing Countries*, FAO. Rome. 43pp.

Ragwa, I. M. (2012). *The Factors Influencing the Collapse of Communal Cattle Dips After Privatization of Veterinary Services in Kenya: A Case of Maara District, Tharaka-Nithi County*. A research project report submitted in partial fulfillment of the requirements for the degree of Master of Arts in Project Planning and Management, University of Nairobi. 20pp.

Riviere-Cinnamond, A. (2003). Animal health policy and practice: Scaling-up community-based animal health systems, lessons from human health. [www.fao.org/ag/pplpi.html] site visited on 01/04/2013.

Rota, A. Sperandini, S. (2009). Livestock and pastoralists. Rome. website at [www.ifad.org] site visited on 01/04/2013.

Rugadya, M., Obaikol, E. and Kamusiime, H, (2005). Critical Pastoral Issues and Policy Statements For the National Land Policy in Uganda: A Policy Brief, Land Research Series 5 – Associates for Development, Kampala.3pp

.Rutebarika, C, Bahari, M. M., Zewdie, S., Mugeny, B. and Kajume J. K.. (Undated).Cross-border issues related to the provision of animal health services with reference to Kenya, Uganda, Ethiopia and Tanzania. Department of veterinary services, Nairobi. 2pp.

Rutabanzibwa, A. P. (Undated). Primary Animal Health Care in the 21st Century *Shaping the Rules, Policies and Institutions Theme One: General Policy, Legislation and Institutional Issues*, Ministry of Water and Livestock Development, The Republic of Tanzania. 7pp.

Schelling, E., Wiebel, D., and Bonfoh, B. (2008). *Learning from the delivery of social services to pastoralists: elements of good practice*. Nairobi. 3pp.

Sherman, S. and David. M. A. (2010). Global veterinary medical perspective on the concept of one health: Focus on Livestock. *ILAR Journal* 51(3): 284 – 289.

- Silkin, T. and Kasirye, F. (2002). *Veterinary Services in the Horn of Africa Where Are We Now?* A review of animal health policies and institutions focusing in pastoral areas. Community based animal health and participatory epidemiology unit. Pan African Programme for the Control of Epizootics, Nairobi, 13pp.
- Swai, E. S. and Masaaza, S. (2012). Where there is no conventional veterinary health delivery services what are the capabilities of community animal health workers? *Journal of Livestock Research for Rural Development* 24: 114 – 119.
- Umali, D.L., G. Feder, and C. de Haan. 1992. The Balance Between Public and Private Sector Activities in the Delivery of Livestock Services. World Bank Discussion Paper 163. Washington. 130pp.
- UNDP (2007). *Governance Indicators: A user's guide*. Second Edition, United Nations Development Programme, Oslo Governance. 1pp.
- UN. (1998). Secretary-General's Report on Work of the United Nations. *Go-Between: United Nations Non-Governmental Liaison Service*, 1–24. [<http://www.unsystem.org>] site visited on 03/07/2013.
- UN (2007). *Public Governance Indicators: A literature review*. Division for Public Administration and Development Management Department of Economic and Social Affairs, United Nations, New York. 7pp.

United Republic of Tanzania (2002). *Ministry Water and Livestock Development Rinderpest Emergency Preparedness Plan for Tanzania*. Government Printers, Dar es Salaam. 25pp.

United Republic of Tanzania (2011) Livestock Sector Development Programme Ministry of Livestock and Fisheries Development. Government Printers, Dar es Salaam.

United Republic of Tanzania (2010). *National Strategy for Growth and Reduction of Poverty II Nsgrp II*. Ministry of Finance and Economic Affairs. Government Printers, Dar es Salaam. 83pp.

USAID (US Agency for International Development). 1980. The workshop on pastoralism and African livestock development. Program Evaluation Report 4. USAID, Washington, 5pp.

Vallat, B. and Dehove, A. (2006). *Animal Health Service Delivery and Veterinary Public Health*. WHO. N'Djamena. 7pp.

WHO (2011). *Governance for Health in the 21st Century: A Study Conducted for the WHO Regional Office for Europe*, Copenhagen. 6pp.

World Bank. (1994). *Governance: The World Bank's Experience*. World Bank Publications. 65pp.

APPENDICES

Appendix 1: A household questionnaire

DEVELOPMENT STUDIES INSTITUTE (DSI)

A Household Questionnaire for M.A. (Rural Development) Research on:

Animal Health Governance and Animal Health Services in Ngorongoro District, Tanzania

By

Luther Zablon Kitandu

M. A. (Rural Development) Student

P. O. Box 3024, Morogoro, Mobile Phone 0784 934074

Date of Interview.....

Initials of Interviewer.....

1. District of residence

2. Division of residence

3. Ward of residence

4. Village of residence

5. Name of the respondent.....

6. Sex of the respondent.....

1= Male, 2 = Female

7. Year of birth of the respondent.....

8. Level of education

1= Non,

2= Primary education

3= Secondary education

4= College

5= University

9. Marital status of the respondent

1 = Married

2 =Unmarried

3 = Widow

10. Main occupation

1 = Livestock keeping

2 = Crop production

3 = Both

11. What is the source of your income?

1 = Sale of livestock

2 = Sale of crops

3 = Business

11. In the following statements put 1 for YES and 0 for NO

Indicators of Governance	Yes	No
12i. The public and the private sectors are efficient in the provision of veterinary services		
12ii. There is transparency in the availability and clarity of information provided to the general public about government activity		
12iii. There is accountability on the monitoring and evaluation livestock activities.		
12iv. A drastic shifting of responsibilities from the public to the private sector has benefited pastoralists in accessing animal health services		
12v.The animal health governance promotes participation by enacting legislation that strengthens the freedom on government plans and budgeting		

13 Animal Health Services in Ngorongoro District (The questions below aim to assess the availability of animal health services in the study area). Please put 1 for Yes and 0 for NO

Animal Health Services	Yes	No
13a. Is the dip tank working in good condition?		
13b. Do you access subsidised veterinary drug?		
13c. Since ECF had caused high mortality of calves, does the government support in vaccination of the disease?		
13d. Do you afford buying veterinary drugs from the veterinary shop?		
13e. Do you get animal health services from the livestock field officer?		
13f. Is there a committee responsible for animal health services in the village?		

(Rank the following governance factors as 1= Yes, 2= No

- 14. Number of cattle died during Jan 2012-Dec 2012
- 15. Number of Goats died during Jan 2012-Dec 2012
- 16. Number of Sheep died during Jan 2012-Dec 2012
- 17. How many times you have bought subsidised veterinary drugs?
- 18. In the period od Jan-Dec 2012 how many calves were born
- 19. In the period od Jan-Dec 2012 how many calves died
- 20. What livestock diseases did you vaccinate your livestock?
 - 1.....
 - 2.....
 - 3.....
 - 4.....

21. Governance related factors affecting animal health services (Rank the following governance factors (1for YES and 0 for No)

Governance related factors	Yes	No
21(1). Accountability: (If hearings of complaints submitted to the village committee and measures are taken)		
21(2). Transparency (If there is dissemination of information, implementation of projects and distribution of subsidies)		
21(3). Responsibility by livestock field officers to livestock keepers in the delivery services		
21(4). Equity in the distribution of resources		
21(5). Efficiency and Effectiveness (If there is fair and consistent legal system and correctly prioritizing government services to correspond with citizen needs)		
21(6). Rule of law (Enforcement of Rules of Act for Prevention and Control of Transmissible Animal Disease)		
21(7). Participation in planning livestock related activities at village level		
21(8). Consensus oriented (Decision making by all members of the community)		

22. Measuring attitude of respondents on Governance indicators (1= strongly disagree, 2=Disagree, 3=Undecided, 4=Agree, 5=Strongly agree)

Indicators of Governance	1	2	3	4	5
There is assurance in the availability of veterinary drugs therefore livestock diseases have reduced to a great extent					
There is routine vaccination of livestock diseases against disease outbreaks					
Livestock personnel are responsive to attend cases as soon as they are called					
Reporting of disease outbreaks have improved as a result of privatisation of livestock services.					
Privatisation of services has improved availability and accessibility of subsidies					
Private sector is efficient in the provision of animal health services therefore reduced livestock mortality.					
Through privatisation livestock keepers can afford to purchase veterinary drugs.					
Participation by stakeholders in the control of livestock diseases can reduce livestock mortalities.					
Imposition of quarantine reduced transmission of livestock disease					
There is need to review livestock policy for improvement of animal health services.					
Animal health governance can influences formulation of livestock policy and therefore animal health services can be					

improved.					
Livestock policy can influence animal health governance in the planning and improvement of animal health services					
Community Animal Health Workers are an important tool in the provision of animal health services in the community					
There are by-laws which govern animal health services in the village.					
Measuring attitude of respondents on Governance indicators					

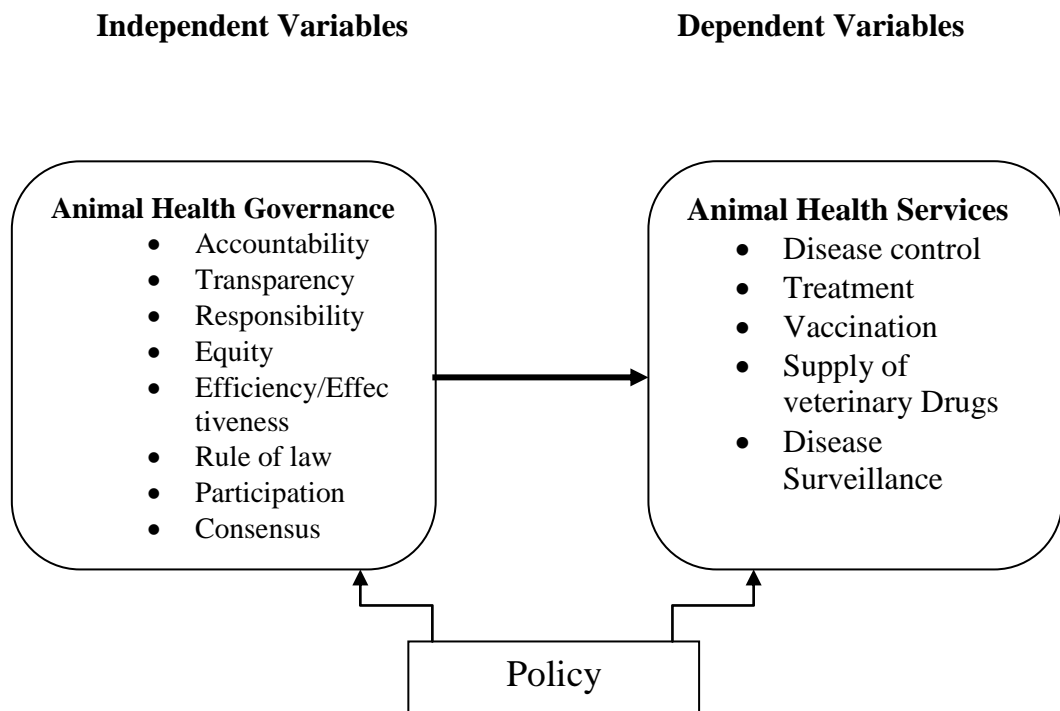
A Checklist of Items for Discussion with DVO and LFOs for M.A. (Rural Development) Research on: Animal Health Governance and Animal Health Services in Ngorongoro District, Tanzania

Checklist for discussion with DVO and LFOs

1. Whether facilitated by the transport.
2. What is the situation on the availability of veterinary drugs in the district?
3. Is there a private sector involve in the provision of veterinary services in the district?
4. What decision on the provision of animal health services have the livestock keepers participated?
5. Does the council contribute to the Livestock Development Fund (LDF) as directed by OWM (TAMISEMI)?
6. Does the council provide you with the following in order to perform your duties?
Transport
7. Fuel and Motivation.
8. Is there a need to formulate a new policy concerning AHS?
9. Whether there is conflict resolutions made between farmers and livestock keepers.

- 10. How does AHG involve itself in natural resources protection?
- 11. Is there a need to formulate a new policy concerning AHS?
- 12. Whether institutions responsible for enforcement of law, regulations and guidelines serve the livestock keepers in a right time?.
- 13. How does AHG involve itself in natural resources protection?

Appendix 2: Conceptual Framework



Appendix 3: Chi-square formula

$$X^2 = \sum \frac{(obs - exp)^2}{exp}$$

Where χ^2 = Chi-Square value

Obs = Observed Frequency in each category

Appendix 4: The T-test

$$t = \frac{x - \mu}{SE}$$

Where x = the sample mean,

T-score (t) = test statistics

μ = is the hypothesized population mean, and

SE = Standard Error whereas SE = s/\sqrt{n}