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**Beyond Avian Influenza: Policy
Considerations for the Implementation of a
“One Health” Approach in Developing
Countries**

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Doctor of Philosophy

University of Edinburgh

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TABLE OF CONTENTS

DECLARATION	10
ACKNOWLEDGEMENTS	11
ABSTRACT	12
LIST OF ACRONYMS	13

CHAPTER ONE: INTRODUCTION TO ONE HEALTH – “A CONCEPT THAT BECAME AN APPROACH AND THEN A MOVEMENT”

1.1 Introduction.....	19
1.2 Evolution of One Health.....	21
1.2.1 Defining One Health.....	22
1.2.2 Veterinary and Medical Co-operation.....	24
1.3 Situating the research: The International Response to Avian Influenza in the 21 st century.....	25
1.4 Thesis Structure: Three Propositions for One Health.....	27
1.4.1 Chapter Three: “Global Health Governance – Where Does One Health Fit?”.....	29
1.4.2 Chapter Four: “One Health by Accident” Control of Human African Trypanosomiasis in Uganda”.....	30
1.4.3 Chapter Five: “After the Crisis: Sustaining “One Health” Momentum in Post-HPAI Nigeria.....	31
1.5 Conclusion.....	32

CHAPTER TWO: THEORETICAL FRAMEWORK AND METHODOLOGY

2.1 Introduction: Hypothesis and Research Objectives.....	35
2.2 Global Health Policy Narratives: The “Big Three” versus the <i>Other Diseases</i> of the Sixth Millennium Development Goal.....	39
2.2.1 The Neglected Zoonoses.....	42
2.2.2 Current Political and Institutional Challenges of Zoonosis Control in Developing Countries.....	44
2.3 Background to the Methodology: Policy Process Theory.....	45

2.3.1 Policy as a Rational, Linear Process.....	46
2.3.2 The Policy Process Framework.....	49
2.3.3 Policy Spaces.....	51
2.4 Research Design: Comparative Case Study Approach.....	52
2.4.1 Generalisability.....	56
2.4.2 Reflexivity and my stance within the research.....	58
2.5 Data Collection and Analysis.....	60
2.5.1 “Global” Level Data Collection.....	62
2.5.2 “National” Level Data Collection.....	64
2.5.2.1 Uganda National Perspective: Key Informant Interviews.....	66
2.5.2.2 Nigeria National Perspective: Key Informant Interviews.....	68
2.5.3 “Local” Level Data Collection.....	69
2.5.3.1 Perception of Risk.....	71
2.5.3.2 Uganda Local Perspective: Conduction of Focus Group Discussions.....	73
2.5.3.3 Nigeria Local Perspective: Conduction of Focus Group Discussions.....	76
2.6 Conclusion.....	79

CHAPTER THREE: GLOBAL HEALTH GOVERNANCE: WHERE DOES ONE HEALTH FIT?

3.1 Introduction.....	82
3.1.1 What is Globalisation?.....	84
3.1.2 Theoretical Framework: A Note about Governance.....	85
3.2 The first 100 years of International Health Governance: 1851-1951.....	87
3.3 International Health Governance from the 1950’s: The Rise and Fall – and Rise Again – of the World Health Organisation.....	90
3.3.1 The 1940’s and 1950’s: Early years of the WHO.....	91
3.3.2 The 1960’s and 1970’s: Shifting World Power.....	92
3.3.3 The 1980’s and 1990’s: WHO in crisis.....	93

3.3.4 The 1990's and beyond: Reassertion of WHO as a leader in global health.....	94
3.4 The 21 st Century: From International Health Governance to Global Health Governance.....	96
3.4.1 The Securitisation of Health.....	97
3.4.2 SARS 2003: The “Nail in the Coffin” on Traditional Health Governance.....	99
3.5 Major Global Health Actors (GHAs) and Networks in the 21 st Century..	100
3.5.1 Nation States.....	101
3.5.2 United Nations Organisations (UNOs).....	102
3.5.3 The World Trade Organisation, World Bank, G8, G20.....	103
3.5.4 Non-government organisations (NGOs) and Civil Society Organisations (CSOs).....	106
3.5.5 The Private Sector, Public-Private Partnerships (PPPs) and Philanthropic Foundations.....	107
3.5.6 The Consultative Group on International Agricultural Research (CGIAR).....	110
3.6 One Health Governance and Development of the One Health Global Network (OHGN).....	113
3.6.1 Introduction.....	114
3.6.2 Outcome of a OHGN Synthesis Questionnaire.....	115
3.6.3 Co-ordinating Governance of One Health.....	117
3.7 Framing One Health Policy: A Global Public Good?.....	120
3.7.1 The Definition of a Global Public Good.....	120
3.7.2 Global Public Goods in the Context of Infectious Disease Control.....	121
3.7.3 The Policy Challenge of the Global Public Goods Perspective: Where Can they be used?.....	123
3.7.3.1 Health Research and Development.....	124
3.7.3.2 Control of Worldwide Communicable Diseases.....	124
3.8 Conclusion.....	126

CHAPTER FOUR: “ONE HEALTH BY ACCIDENT”: CONTROL OF HUMAN AFRICAN TRYPANOSOMIASIS IN UGANDA

4.1 Introduction.....	129
4.1.1 Background to AAT and HAT in Africa.....	130
4.1.2 History of Human African Trypanosomiasis in Uganda.....	135
4.1.3 “A Sense of Urgency”: Recently Changing Patterns of Human African Trypanosomiasis in Uganda.....	137
4.1.4 Policy for Animal Disease Control: Uganda’s Animal Disease Act.....	139
4.1.5 Overarching Agricultural Policy: Uganda’s Plan for the Modernisation of Agriculture (PMA).....	141
4.2 Power to the People? Policy Processes in a Decentralised Uganda.....	142
4.2.1 Uganda’s Political History and Current Government Structure.....	142
4.2.2 Decentralisation and Public Participation.....	143
4.2.3 The Policy Process in Uganda.....	147
4.2.4 The “Politics of Policy”: Diminishing Role of Technical Contribution.....	149
4.3 Situating the Field Research: Overview of Soroti and Serere Districts of Uganda.....	151
4.3.1 Animal Health and Management in Soroti and Serere Districts: Community Perspective.....	153
4.3.2 Knowledge, Attitudes and Practices of Zoonotic Disease.....	156
4.3.3 Marketing Livestock.....	160
4.4 Where there is no Policy: Stamp Out Sleeping Sickness.....	161
4.4.1 Community Based Control: Stamp Out Sleeping Sickness (SOS): Phase One 2006-2008.....	161
4.4.2 Stamp Out Sleeping Sickness: Phase Two 2008-2011.....	162
4.4.3 Community perceptions regarding the purpose of SOS.....	163
4.4.4 Community perceptions regarding tick and tsetse control.....	164
4.4.5 Community Perceptions Regarding SOS II Implementation...	165
4.5 Intersectoral Collaboration in Uganda for Zoonotic Disease Control....	171

4.5.1 Interministerial Collaboration at the Central Government Level.....	171
4.5.2 Interministerial Collaboration at the District and Local Government Levels.....	173
4.5.3 “One Health by Accident”: The Co-ordinating Office for the Control of Trypanosomiasis in Uganda (COCTU).....	175
4.5.4 Weaknesses in the Current COCTU Structure.....	177
4.5.5 Expansion of COCTU’s Mandate to become a One Health Platform.....	180
4.6 Disease Spread as a result of Poor Implementation of National Policy.....	181
4.6.1 Meat Inspection at Abattoirs.....	182
4.6.2 Pre-movement Treatment of Animals.....	183
4.6.3 Prioritisation of Quarantine Measures.....	185
4.7 Sharing of National Ministerial Resources: What would One Health success look like?.....	188
4.8 Conclusion.....	191

**CHAPTER FIVE: AFTER THE CRISIS: MAINTAINING “ONE HEALTH”
MOMENTUM IN POST-HPAI NIGERIA**

5.1 Introduction to the “Custodians” Of Nigeria’s Cattle Herds.....	193
5.1.1 Setting One Health in Motion: Nigeria’s 2006 HPAI Outbreak.....	195
5.1.2 Nigeria’s Government Structure.....	197
5.1.3 Policy Process within the Ministries of Health and Agriculture.....	200
5.1.4 The Reality of the Policy Making Process in Nigeria.....	202
5.1.5 Animal and Human Disease Surveillance and Reporting Systems.....	204
5.2 Situating the Field Research: Background to the Kachia Grazing Reserve, Kaduna State, Nigeria.....	207
5.2.1 Changing Patterns of Land Use in Nigeria.....	207

5.2.2 Pastoralist Conflict in Nigeria and the Grazing Reserve Act of 1964.....	210
5.2.3 Description and Location of Kachia Grazing Reserve (KGR).....	212
5.2.4 Establishment of Kachia Grazing Reserve.....	214
5.3 Fulani Governance Mechanisms.....	219
5.3.1 The Role of Government.....	221
5.3.2 The Role of Islam.....	226
5.3.3 The Role of the District and Village Heads.....	226
5.3.4 The Role of Co-operative Societies.....	228
5.3.4.1 Female Co-operative Groups.....	228
5.3.4.2 Male Co-operative Groups.....	230
5.3.5 The Role of NGOs and Other External Organisations.....	232
5.3.6 The Role of the Private (Veterinary) Sector.....	234
5.4 Livestock Matters: Interaction between Governance Actors for Livestock Disease Control.....	237
5.4.1 KAP Study Livestock Disease and Management.....	238
5.4.2 Local Knowledge and Perception of Zoonotic Disease Risks.....	240
5.4.3 Fulani Self Governance for Disease Control on Kachia Grazing Reserve.....	243
5.5 Understanding of the Local Situation by External Actors: Strengthening Advocacy and Political Prioritisation of the Endemic Zoonoses.....	245
5.5.1 Passive Surveillance and Underreporting of Zoonoses.....	245
5.5.2 Efficacy of Abattoir Surveillance.....	248
5.5.3 Improving Prevalence Data for the Zoonotic Diseases: Nigeria's Field Epidemiology and Laboratory Training Programme (FELTP).....	249
5.6 Conclusion - The Future of One Health in Nigeria.....	251

CHAPTER SIX: THESIS CONCLUSION

6.1 Revisiting the Four Research Objectives in light of the Hypothesis.....	254
6.2 The contribution of this Research.....	267
6.3 Conclusion.....	271

BIBLIOGRAPHY	274
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APPENDICES

I: Timeline Of Significant One Health Events Since The 1990's.....	289
II: Manhattan Principles.....	293
III: Beijing Declaration 18 th January 2006.....	295
IV: Hanoi Declaration April 2010.....	298
V: Communiqué NLDC Meeting, Abuja, 17 th March, 2011.....	302

LIST OF BOXES, FIGURES, MAPS AND TABLES

I. Boxes

Box 1: Discussion Topics Semi-Structured Interviews.....	65
Box 2: Focus Group Discussion Checklist.....	72
Box 3: Stoker's "Five Propositions of Governance".....	86
Box 4: International Health Regulations.....	90
Box 5: Objectives of the One Health Global Network.....	114
Box 6: COCTU Vision, Mission and Mandate.....	176

II. Figures

Figure 1: Thematic Representation of One Health.....	23
Figure 2: Perspectives of Global Health Governance.....	101

Figure 3: Northwards spread of HAT in 10 years showing 150 km separation of acute and chronic forms of HAT by 2005.....	139
Figure 4: Uganda’s Structure of Decentralisation.....	144
Figure 5: Uganda’s “Official” Policy Process with its similarities to the “conventional” linear view of policy.....	148
Figure 6: Nigerian Government Structure showing Key Decision Makers at each level.....	199
Figure 7: Policy Process Nigerian Federal Ministry of Agriculture.....	201
Figure 8: Venn Diagram Showing Relative Stake of Various Actors within the Fulani Governance System on KGR.....	221

III. Maps

Map 1: Distribution of Zoonotic Disease in Africa.....	54
Map 2: HAT Endemic Countries showing separation of <i>rhodesiense</i> and <i>gambiense</i> and the two forms in Uganda.....	131
Map 3: Overlay of tsetse distribution and poverty.....	132
Map 4: Uganda districts highlighting the “cattle corridor”.....	152
Map 5: Uganda Focus Group Discussion Villages.....	154
Map 6: SOS Phase 1 and 2 Target Areas.....	163
Map 7: Detail of Kachia Grazing Reserve and its location within Nigeria.....	213

IV. Tables

Table 1: Comparative Country Statistics at a Glance.....	55
Table 2: List of Key Informant Interviews Uganda.....	67
Table 3: List of Key Informant Interviews Nigeria.....	68
Table 4: Focus Group Discussions Soroti and Serere Districts.....	75
Table 5: Focus Group Discussions Kachia Grazing Reserve.....	78
Table 6: International Treaties for Infectious Diseases 1892–1951.....	89
Table 7: Shifting Trends in EBF up until the 1990’s.....	94
Table 8: Currently available drugs for the treatment of HAT.....	135

Declaration

I declare that the research undertaken for the purposes of this thesis is, unless otherwise indicated, my own work and has never been submitted for the purposes of another degree or professional qualification.

Anna Louise Okello

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ABSTRACT

The global One Health movement has become firmly entrenched in both political and scientific discourse pertaining to emerging infectious diseases in the past decade. Since the discovery of the H5N1 strain of Highly Pathogenic Avian Influenza in Hong Kong in 1997, the promotion of more holistic programmes for the control of emerging infectious disease has garnered “unprecedented support” in terms of donor funding and political mobilisation (Scoones 2010). Advocates of One Health argue that intersectoral approaches promoting better communication between the veterinary, medical and environmental disciplines at all levels of governance make not only sound economic sense, they are fundamental to the “new approach” required to address the growing disease threats of the 21st century. However, despite international endorsement of the One Health rhetoric, there is growing pressure to now “turn the rhetoric into reality” (Okello *et al* 2011). Using a multiple, embedded case study methodology, this thesis seeks to examine questions surrounding the practical implementation of One Health interventions, particularly in developing countries which experience limited resources and competing health priorities. Through examining the livestock and public health policy processes at both local and national levels in Uganda and Nigeria, I attempt to identify whether policy spaces exist for the formal inclusion of One Health approaches in future policy decisions. Furthermore, by scrutinising the current internationally dominant One Health narratives in light of global health governance perspectives and the emerging One Health Global Network, I question whether One Health can be better “packaged” to include endemic diseases and a more focussed sustainable livelihoods approach; arguably inciting greater motivation for developing countries to truly participate. Data from my three empirical chapters are presented in the context of three overriding “One Health propositions” for consideration; by questioning “whose world, whose health¹”, I aim to delve further into the issues of not whether, but *how* this “new health paradigm” can be operationalised, and how to address the potential gaps which may ultimately prevent One Health from becoming a truly global phenomenon.

¹ As depicted in Scoones (2010:13)

LIST OF ACRONYMS

AAT	Animal African Trypanosomiasis
ACT	Artemisinin-based Combination Therapy
AFENET	African Field Epidemiology network
AHT	Animal Health Technicians
AIDS	Acquired Immunodeficiency Syndrome
AVMA	American Veterinary Medical Association
AVO	Area Veterinary Officer
BMGF	Bill and Melinda Gates Foundation
BSE	Bovine Spongiform Encephalopathy
BTB	Bovine Tuberculosis
CBPP	Contagious Bovine Pleuropneumonia
CDC	US Centres for Disease Prevention and Control
CE	Cystic Echinococcus
CGIAR	Consultative Group on International Agricultural Research
CIDLID	Combating Infectious Diseases in Livestock for International Development
CIT	Country in Transmission
CNN	Cable News Network
COCTU	Co-ordinating Office for the Control of Trypanosomiasis in Uganda
CBAHW	Community Based Animal Healthworker
CSO	Civil Society Organisation
CVO	Chief Veterinary Officer
DALY	Disability Adjusted Life Year
DANIDA	Danish International Development Agency
DBL	Danish Centre for Health Research and Development
DC	Developing Country

DfID	Department for International Development (UK)
DNEI	Diseases of National Economic Importance
DS&NO	Disease Surveillance and Notification Officers
DVO	District Veterinary Officer
DVS	Division/District Veterinary Services
EBF	Extra-Budgetary Funding
EC	European Community
ECF	East Coast Fever
EID	Emerging Infectious Diseases
EIS	Epidemic Intelligence Service
EMRES	FAO Emergency Prevention System
EU	European Commission
FAC	Financial Allocation Committee
FAO	Food and Agriculture Organisation of the United Nations
FELTP	Field Epidemiology and Laboratory Training Programme
FGD	Focus Group Discussion
FITCA	Farming in Tsetse Controlled Areas
FMD	Foot and Mouth Disease
FVM	Faculty of Veterinary Medicine
GDP	Gross Domestic Product
GF	Global Fund
GHA	Global Health Actor
GHI	Global Health Initiative
GHP	Global Health Partnership
GoU	Government of Uganda
GPG	Global Public Good
GRAI	Global Response to Avian Influenza
HAT	Human African Trypanosomiasis

HIPC	Highly Indebted Poor Country
HIV	Human Immunodeficiency Virus
HPAI	Highly Pathogenic Avian Influenza
HRW	Human Rights Watch
ILCA	International Livestock Centre for Africa
ICONZ	Integrated Control of Neglected Zoonoses in Africa
ISDR	Integrated Disease Surveillance and Response
IDS	Institute of Development Studies (University of Sussex)
IHR	International Health Regulations of the WHO
IFPRI	International Food Policy Research Institute
ILO	International Labour Office
ILRI	International Livestock Research Institute
IMCAPI	International Ministerial Conference on Avian and Pandemic Influenza
IMF	International Monetary Fund
KADP	Kaduna State Development Programme
KAP	Knowledge Attitudes Practises
KGR	Kachia Grazing Reserve
KII	Key Informant Interview
LC	Local Councillor
LGA	Local Government Authority
LSD	Lumpy Skin Disease
MAAIF	Uganda's Ministry for Agriculture, Animal Industry and Fisheries
MACBAN	Miyetti Allah Cattle Breeders Association of Nigeria
MCF	Malignant Catarrhal Fever
MDA	Mass Drug Administration
MDGs	Millennium Development Goals
MINTRACS	Makerere In-Training Community Service

MoH	Ministry of Health (depicted by UMoH or NMoH for Ugandan and Nigerian Ministries respectively)
MPH	Masters Public Health
NAADS	National Agricultural Advisory Services
NARO	National Agricultural Research Organisation
NCA	National Council of Agriculture
NCD	Newcastle Disease
NCH	National Council of Health
NGO	Non Governmental Organisation
NITR	National Institute of Trypanosomiasis Research
NLDC	National Livestock Development Council
NMoA	Nigerian Ministry of Agriculture
NRM	National Resistance Movement
NTCAI	National Technical Committee on Avian Influenza
NTD	Neglected Tropical Disease
NUT	National Union of Teachers
NVC	Nigerian Veterinary Council
NVRI	National Veterinary Research Institute (Nigeria)
NZD	Neglected Zoonotic Disease
ODI	Overseas Development Institute
OECD	Organisation for Economic Cooperation and Development
OH	One Health
OHGN	One Health Global Network
OHITF	One Health Initiative Task Force
OIE	World Organisation for Animal Health/Office International des Epizooties
OIHP	Office International d'Hygiène Publique
ORSAS	Overseas Research Students Awards Scheme
OWOH	One World One Health

PAHO	Pan American Health Organisation
PEAP	Poverty Eradication Action Plan of the Ugandan government
PEP	Rabies Post Exposure Prophylaxis
PEPFAR	US President's Emergency Plan for AIDS Relief
PHEIC	Public Health Emergency of International Concern
PMA	Plan for the Modernisation of Agriculture
PPP	Public Private Partnership
PPR	Peste de Petit Ruminants
PRA	Participatory Rural Appraisal
PRSP	Poverty Reduction Strategy Paper
RAP	Restricted Application Protocol
SAP	Structural Adjustment Programme
SARS	Severe Acute Respiratory Syndrome
SLE	St. Louis Encephalitis
SOS	Stamp Out Sleeping Sickness
STH	Soil Transmitted Helminths
TAD	Transboundary Animal Disease
TB	Tuberculosis
TBD	Tick Borne Disease
T&T	Trypanosomiasis and Tsetse
UBS	Ugandan National Bureau of Standards
UK	United Kingdom
UMoF	Ugandan Ministry of Finance
UN	United Nations
UNAIDS	United Nations AIDS Agency
UNDP	United Nations Development Programme
UNO	United Nations Organisation
UNICEF	United Nations Children's Fund

UNRRA	United Nations Relief and Rehabilitation Administration
UNSC	United Nations Security Council
UNSIC	United Nations System Coordinator for Avian and Human Influenza
US(A)	United States (of America)
USAID	United States Agency for International Development
USSR	Union of Soviet Socialist Republics
UTCC	Ugandan Trypanosomiasis Control Council
VPH	Veterinary Public Health
WB	World Bank
WCS	Wildlife Conservation Society
WHA	World Health Assembly
WHO	World Health Organisation
WNV	West Nile Virus
WTO	World Trade Organisation
WWII	World War Two

CHAPTER ONE

INTRODUCTION TO ONE HEALTH – “A CONCEPT THAT BECAME AN APPROACH AND THEN A MOVEMENT”²

1.1 Introduction

In the modern world, bacteria and viruses travel almost as fast as money. With globalization, a single microbial sea washes over all humankind. There are no health sanctuaries.

Dr. Gro Harlem Brundtland³ (2001)

Since 1900, the earth’s population has increased from one billion people, to over six billion at the beginning of the 21st century (Gibbs 2005). It is estimated that by 2025, the human population will stand at over eight billion, largely in developing countries where the majority of the world’s poor live (FAO 2008). This incessant rise in the planet’s population is placing significant strain on natural resources, with concerns that the “world’s latest generation could be the first in history to experience a *reduction* in life expectancy and health in general” (AVMA 2008). A comprehensive study has revealed that approximately 868 (61%) of the 1416 infectious diseases known to affect humans are of animal origin, with zoonotic diseases overall twice as likely to be associated with emerging infectious diseases compared with non-zoonotic disease (Taylor *et al* 2001). Echoing this, it has been stipulated that up to

² Background meeting documents, One Health Global Network, Atlanta November 2011

³ Former Norwegian Prime Minister and Director of the WHO; speech at the United Nations Association’s Global Leadership Awards 2001 (see bibliography for full citation)

75% of the emerging infectious diseases seen in human populations over the last 30 years are of animal origin (Osburn *et al* 2009, AMVA 2008).

Many hypotheses have been proposed to explain the reasons for this recent “spike” in the emergence of zoonotic diseases worldwide. One of the most fundamental factors is thought to be the increasing dependence on animal protein for food, which inadvertently places natural resources under pressure (Delgado *et al* 1999). For example, the “slash and burn” clearing of forests to expand agricultural land was implicated in the emergence of Malaysia’s Nipah virus in 1998 (Kaw 2003). Increased human contact with wildlife through poaching, bush meat consumption and expanded livestock grazing areas increases the probability of zoonotic disease spill over from wildlife reservoirs, such as that seen with Ebola and HIV. Climate change has been implicated in changing disease patterns of vector transmitted diseases such as Rift Valley Fever, Human African Trypanosomiasis and West Nile Virus. Intensification of farming systems, particularly in developing countries, places further pressure on already strained biosecurity measures, increasing the threat of emerging diseases and viral amplification (FAO 2008). Globalisation and tourism can facilitate disease spread in less time than the pathogen’s incubation period; for example the devastating entry of SARS into Canada in 2004 was traced back to a passenger who was healthy at the time of boarding a flight from China (Gibbs 2005). Unsafe trading of animals has also been implicated in the introduction of disease on a number of occasions, including Monkey pox brought into America in 2003 through a shipment of rodents from West Africa. It has been estimated that “tens of millions”

of animals are moved from Asia to other parts of the world for use in traditional medicine and food (Gibbs 2005).

1.2 Evolution of One Health

“Questions of the animal origins of human disease lie behind the broadest pattern of human history, and behind some of the most important issues of human health today”

Diamond, *Guns Germs and Steel* (2007)

Notwithstanding the interest surrounding emerging zoonoses in the 21st century, the intimate connectivity between animals, humans and the environment, and our interdependence upon each other for survival, has been observed for centuries;

“The relation of animal disease to human disease was observed in the ancient civilisations of Babylon, the Nile Valley, and China. Later, they were described by Leviticus in the Old testament, by Hippocrates in Greece, and by Virgil and Galen in Rome” (Steele 1964).

In the Middle Ages, the plague that killed millions of people was spread by rats, and Rinderpest outbreaks across Europe in the 18th century created such serious devastation to social and economic structures that Pope Clement XI instructed his personal physician to investigate the epidemic when it arrived in Italy in 1713 (Steele 1964). Some suggest zoonotic disease emergence is linked to two major events in history; the agricultural revolution, where livestock domestication around 10 000 years ago led to the “likely appearance of new zoonotic diseases”, and industrialisation, where the shift of focus from infectious disease to “the chronic diseases of modern society” has been blamed for weakening public health structures over the 20th century (King *et al* 2004).

Furthermore, the association of zoonotic disease with human tragedy such as war and famine have been commonly seen throughout history. One of the most famous documented events was the 1861-1866 glanders epizootic in North America, as a result of the crowding of thousands of mules and horses together for military purposes during the American Civil War (Sharrer 1995). The end of the First World War saw “the worst infectious pandemic in history”; the 1918-1919 “Spanish flu” epidemic which killed an estimated 50 million people worldwide (Reid *et al* 1999). Recent analyses of H1 sequences suggest close linkages to influenza strains naturally circulating in avian and swine populations to be the cause (Taubenberger *et al* 2005). More recently, Ugandan districts recovering from decades of civil war have experienced unprecedented outbreaks of Human African Trypanosomiasis as a result of careless cattle restocking programmes⁴ (Okello *et al* 2011, Picozzi *et al* 2005).

1.2.1 Defining One Health

The term “One Health” has evolved in recent decades to acknowledge this close relationship between humans, animals and the natural, political and socioeconomic environments in which they co-exist. One Health advocates maintain that intersectoral collaboration between the veterinary, medical and environmental sectors results in added benefit to each individual sector⁵ (Zinsstag *et al* 2009, Zinsstag *et al* 2005). Synonymous with One Health are the terms “One Medicine”, “One World, One Health™”⁶ and “One World, One Health, One Medicine”⁷. Although no single definition is universally accepted, the AMVA defines One Health as the

⁴ See Chapter Five of this thesis for a more detailed explanation

⁵ See Figure 1

⁶ A trademark of the Wildlife Conservation Society

⁷ As used by the World Veterinary Congress

“collaborative effort of multiple disciplines-working locally, nationally, and globally to attain optimal health for people, animals and our environment” (AVMA 2008). The External Action Arm of the European Union has a more expansive definition which aligns with the approach adopted by the FAO as “the improvement of health and well-being through (i) the prevention of risks and the mitigation of effects of crises that originate at the interface between humans, animals and their various environments and (ii) promoting a cross-sectoral, collaborative, “whole of society” approach to health hazards (Okello *et al*, 2011). In contrast, the World Health Organisation (WHO) and the World Organisation for Animal Health (WOAH/OIE) lean towards more restricted definitions referring to zoonotic threats (Okello *et al* 2011).

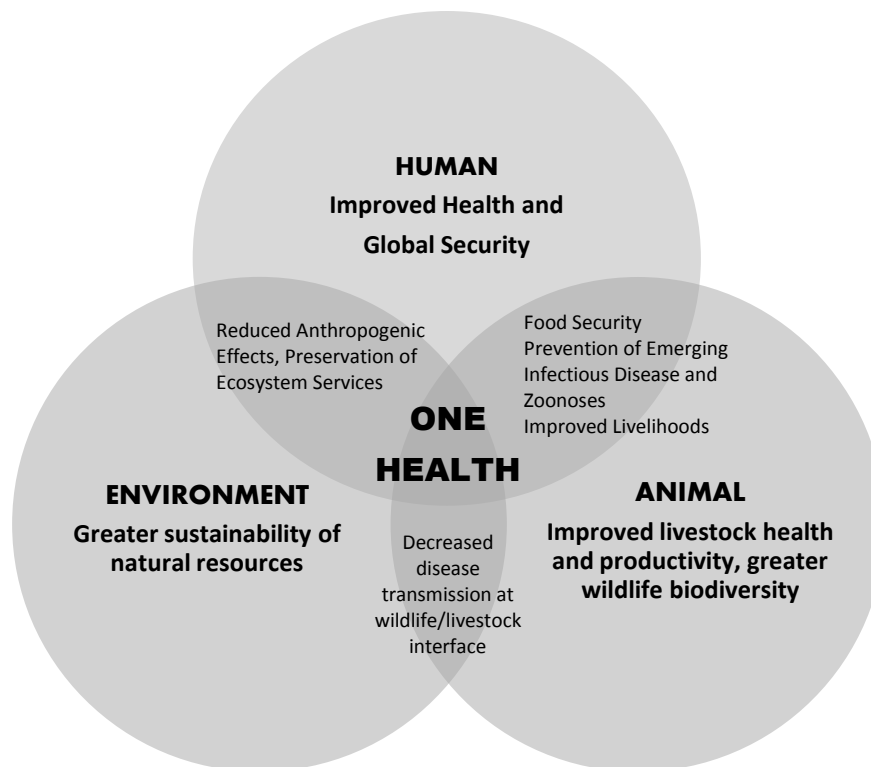


Figure 1: Thematic Representation of One Health

1.2.2 Veterinary and Medical Co-operation to Address Zoonoses

There remains indecision surrounding whether the veterinary or medical sectors should take the lead role in driving forwards One Health and zoonoses control, particularly in developing countries where a high burden of endemic disease exists. Health Ministries expect the Ministries of Agriculture to address the problem due to the origin of zoonoses within animal reservoirs; however the agriculture sector argues that as the greatest burden of zoonoses such as rabies is within the human population, Health Ministries should share the responsibilities for control. This has ultimately led to “control of NZDs falling into the gap between veterinary responsibilities and medical needs” (WHO 2009).

Given the evidence surrounding the threat of disease from animal reservoirs, particularly in the area of emerging disease, it would seem that closer collaboration between veterinary and medical disciplines for the diagnosis, surveillance and control of zoonotic infections would be a priority. This is especially true in countries with poor internal infrastructure, given the potential cost savings of “doubling up” human and veterinary interventions such as vaccination programmes⁸. However, some experts feel the veterinary and medical communities are moving *further apart* as we move into the 21st century; “the longstanding omission of fully utilizing veterinary medicine’s unique and talented biomedical and comparative medicine research potential has been unaccountably short sighted” (Kaplan 2006). Through examining various political and economic disease control narratives arising from the exceptional international response to HPAI, a major aim of this thesis is to explore

⁸ Jakob Zinsstag and colleagues have written extensively on their research experiences surrounding joint delivery of health and veterinary services in Arica, see Zinsstag *et al* (2005), Zinsstag *et al* (2009)

some of the institutional requirements needed if greater inter-disciplinary collaboration will develop as a long term strategy to address zoonotic disease in developing countries.

1.3 Situating the research: The International Response to Avian Influenza in the 21st century

The huge media and international response to the emergence of H5N1 Avian Influenza, first characterised in the 1997 Hong Kong outbreak where eighteen people were infected and six died, is arguably the defining point in revival of One Health dialogue in the 21st century. Highly Pathogenic Avian Influenza virus (HPAI) is caused by a subtype of the Influenza A virus (H5N1); the threat of viral mutation to become transmissible between humans is high, and there are fears a global pandemic would be devastating. To put things in perspective, the 1918 “Spanish flu” pandemic had an average mortality rate of just 2 percent, compared to the current strain of H5N1 which has a mortality rate of 50 percent (Gibbs 2005).

Since 2003, 283 people have reportedly died from H5N1 worldwide, with frequent outbreaks in poultry populations across Asia and Europe possibly contributing to its endemicity in bird populations in countries such as Egypt, Indonesia and China (Scoones 2010). HPAI is now endemic in the rice growing areas of Southeast Asia, with the estimated economic losses at over \$20 billion USD to date (FAO 2008, Gibbs 2005). Continued spread of HPAI into Europe via migratory birds has the ongoing potential to damage both local and commercialised poultry operations; a fact

often overlooked by the media's focus on the likely impacts of the human disease arriving in Europe via a "pandemic that arrives with an infected international human traveller on a commercial flight from Asia" (Gibbs 2005). The "bird flu" epidemic preceded a stream of international emerging zoonotic disease scares in recent years including SARS, Nipah virus and West Nile Virus, and has prompted calls for closer collaboration between the medical and veterinary disciplines for their control. The renewed attention on HPAI around 2005 was buoyed in part by a dire warning from the head of the United Nations System Coordinator for Avian and Human Influenza (UNSIC) David Nabarro, who warned that up to 150 million people could die of bird flu; "It's like a combination of global warming and HIV/AIDS 10 times faster than it's running at the moment"⁹. The increased political and media focus around 2005 ultimately led to re-framing of the policy debate "from a problem of chicken farmers and hygienically inadequate markets in East and Southeast Asia to one that could affect everyone" (Scoones and Forster 2007).

To date, there have been a number of high profile collaborations¹⁰ between multi-national partners and donors such as the WHO, FAO and OIE to discuss and establish funding and policy platforms which could be utilised to address the issue of HPAI and emerging zoonoses in general. Despite these well intentioned initiatives, recent epidemiological, economic and political responses to HPAI has raised concern by some that the "big politics" of stamping out intermittent disease outbreaks has dominated the approach, to the neglect of a "livelihoods approach" arguably more

⁹ See BBC news report Friday September 30th 2005 <http://news.bbc.co.uk/2/hi/asia-pacific/4292426.stm>

¹⁰See Appendix I

pertinent to developing economies or endemic situations (Scoones 2010). One author cites the “firm action” taken by Chinese officials during the 2008 recurrence of HPAI in Hong Kong; the looming Beijing Olympics and potential economic consequences of an outbreak are thought to have pushed through the approval of a USD \$128 million market restructuring programme, despite concerns it could send small scale poultry farmers out of business (Scoones 2010). Such a scenario demonstrates the “competing policy formulae and diverse, sometimes conflicting, intervention responses”¹¹ which have accompanied the One Health debate since its inception, and a major focus throughout this thesis.

1.4 Thesis Structure: Three Propositions for One Health

Using a multi-case study approach, this thesis is structured around three empirical chapters, each of which discusses One Health in the context of one of three “levels” of health policy: international, national and local. The empirical evidence for each chapter is organised around a One Health proposition, inspired by Mosse (2005)¹². In keeping with Stoker (1998), these three propositions aim to present a number of features of One Health for *consideration*, rather than list “a sequence of statements that can be proven as true or false” (Stoker 1998). Chapter three (Proposition One) has an international focus, which underlies the context for the remaining two chapters within the African setting. Chapter four (Proposition Two) is set in Uganda with a focus on One Health at the national level. In contrast, chapter five

¹¹ Discussed in Scoones (2010)

¹² In *Cultivating Development: An Ethnography of Aid Policy and Practice* Mosse (2005) uses five propositions to explore the relationship between policy and practice in the context of an international development project in India

(Proposition Three) looks at some of the locally relevant issues to One Health through a case study in Nigeria.

Africa is deemed a relevant continent for examination of One Health approaches to the control of infectious endemic zoonoses. It is the setting for the first major collaborative research attempt to look at the impact of endemic zoonotic disease, the Integrated Control of Neglected Zoonoses (ICONZ) project¹³, through which my research was conducted. Although the recent HPAI situation in Asia has allowed that region to receive the lion's share of zoonoses funding and profile of late, Africa has historically been home to some of the most striking examples of disease spill over from animals, including HIV and Ebola. Additionally, it is estimated one third of agricultural GDP in Africa is obtained through livestock production; therefore interventions to improve the zoonotic disease burden should in many cases improve livestock outputs, resulting in economic gain to the country and improved human welfare (Jones *et al* 2011). Although many have been advocating for increased prioritisation of the African livestock sector, it still remains a relatively neglected sector in terms of macroeconomic policy and funding in many countries, as set out in the Poverty Reduction Strategy Papers¹⁴ (Blench *et al* 2003). Lack of veterinary sector progress is evident at the ground level across Africa¹⁵, with farmers' limited resources often inadequate to support private veterinary service provision, particularly in rural areas. In contrast, human health justifies continual state support; the recognition that animal health is linked to human welfare in the context of

¹³ Funded by the European Commission's Seventh Framework programme

¹⁴ Developed by Highly Indebted Poor Countries (HIDP) in conjunction with development partners to drive macroeconomic policy in countries receiving concessional lending from the World Bank

¹⁵ A myriad of literature supports my own veterinary experiences in over eight African countries since 2005

zoonotic diseases “needs continual reinforcement” (Butcher 2009). The case for improved management of animal diseases in Africa therefore provides a relevant setting within which to undertake my PhD research. An overview of the three empirical chapters is as follows:

1.4.1 Chapter Three: “Global Health Governance – Where Does One Health Fit?”

- International Policy Context

This chapter investigates the first proposition that “*One Health occupies a precarious position within the complex dynamics of Global Health Governance in the 21st Century*”. By looking at the multifaceted and changing historical perspectives of international health governance since the 19th century, this chapter serves as a foundation with which to discuss the complex governance picture of the 21st century which unfolds throughout the remainder of the thesis. Secondly, through unpacking the Global Public Goods perspective in which One Health is currently framed, this chapter considers whether this definition will adequately promote the desired characteristics of the approach. Moreover, the chapter explores whether the “One Health as a Global Public Good” narrative will allow for equal participation of all countries in international One Health initiatives, given that not all diseases occur in all countries.

1.4.2 Chapter Four: “One Health by Accident” Control of Human African Trypanosomiasis in Uganda”

- National Policy Context

This chapter investigates the second proposition that *“Politically endorsed national One Health structures could help ensure successful, sustained functioning of less formal collaborations”*. Through exploring Uganda’s long-standing “One Health” approach to zoonotic Human African Trypanosomiasis (HAT), this chapter explores the approach in the national-level policy context. By examining the formation of the Co-ordinating Office for the Control of Trypanosomiasis in Uganda (COCTU), a permanent interministerial platform set up in the 1990’s for HAT control, I question whether its remit could be expanded to a wider One Health focus given the current disease climate of Uganda¹⁶. In the case of both the endemic and the “dramatic” disease outbreaks, it is proposed that a formally mandated institutional arrangement such as COCTU may allow for better transparency of funding and co-ordination to zoonotic disease control, whilst at the same time clarify roles and responsibilities of the various sectors. This is particularly important in the absence of policy enforcement, such as is the case with most zoonoses in Uganda (and indeed Africa); bodies such as COCTU could function as a politically endorsed “glue” to ensure sustainability of a One Health approach to disease control and preservation of natural resources. In this way, networks could be co-ordinated both horizontally between sectors, and also vertically between the local, national and international levels of society to garner advocacy and political leverage for addressing “alternative One Health narratives”¹⁷. Ultimately this chapter serves to highlight the long term

¹⁶ A number of recent high profile, and subsequently well donor-funded, short term taskforces to control, outbreaks of anthrax, Marburg virus and Ebola have recently occurred in the country

¹⁷ Alternative narratives as depicted by Scoones (2010) amongst others include development or livelihoods approaches that reinforce the connections between animal health and human welfare.

vision required if One Health is to become institutionalised within current government policy agendas, particularly in developing countries where competing priorities are many.

1.4.3 Chapter Five: “After the Crisis: Sustaining “One Health”

Momentum in Post-HPAI Nigeria

- Local Policy Context

This chapter investigates the third proposition that “*The evolution of One Health from the ‘emergency to the everyday’ necessitates integration of local perspectives*”.

A high profile One Health response existed in Nigeria after the 2006 HPAI outbreak, however sustaining its momentum “now the donors have left” is proving difficult.

Adopting a One Health approach could be beneficial, particularly in addressing a potentially large reservoir of Nigeria’s zoonotic diseases at source: livestock of the pastoralist Fulani in remote rural parts of the country which supply over 80% of Nigeria’s meat and milk. This chapter provides the remaining “local” One Health focus through analysis of empirical data from my time on a Fulani grazing reserve in the north of the country. Exploration of the Fulani governance systems, with a focus on animal health, has provided valuable insight into how disease control occurs in the absence of significant government or policy influence. By triangulating the Nigerian government’s current approach to zoonotic disease control with views of the pastoralist Fulani livestock keepers, I aim to describe the two different views and determine ways in which meaningful partnerships between pastoralists and other public or private actors involved in animal disease control can be built in future,

particularly given the potentially large stake the Fulani have in Nigeria's public health status. Additionally, through attempting to understand the conflict between "official" government policy for disease control, and the realities of their on-ground implementation through the eyes of the Fulani herders, this chapter contributes evidence for the argument that community-driven, rather than donor-driven interventions are preferable if One Health is to be promoted as an "everyday" response to disease issues in the country.

1.5 Conclusion

It is widely accepted that One Health is becoming the new "21st century exhortation"; arising from the international response to HPAI as a means to collectively address the health challenges in today's globalised world (Okello *et al* 2011). The international political reaction to HPAI has been described by some as an "outbreak narrative", dominated by public fear and an "us versus them" attitude (Scoones 2010). Although evidence suggests that One Health dialogue has progressed from this¹⁸, the approach is nevertheless still widely discussed in the context of related issues such as securitisation and global public good perspective, maintaining a strong focus on emerging infectious diseases in the context of a global pandemic.

As with all evolving approaches, it is pertinent to periodically stop and evaluate its progress, particularly as One Health advocates come under increasing pressure by

¹⁸ As discussed in chapter two of this thesis: "Global Health Governance – Where does One Health fit?"

policy makers and donors to translate the approach “from ideas into action”¹⁹. Using an abductive case study approach to explore the relationships emerging between One Health policy dialogue and its practical implementation, particularly in the African context, the crux of this thesis aims to contribute to the growing discussion surrounding not whether but *how* this “new health paradigm” could be operationalised. Without concrete examples of how One Health could or should work in practice, it risks becoming seen as nothing more than a “desperate attempt to grab funds on the tail-end of the avian influenza bonanza” (Scoones 2010).

In conclusion, by presenting a critical analysis²⁰ of One Health questioning “Whose World, Whose Health”²¹, this thesis aims to contribute evidence towards the broadening of One Health narratives outside the context of securitisation and emerging infectious diseases which have largely dominated dialogue to date. By gaining an understanding of the challenges affecting the often fractured human and animal health services in Africa, it is hoped the global appeal of One Health can be broadened; at present what is considered “important” to the global community may not be important to individual countries faced with large burdens of endemic disease. The evidence from the three empirical chapters goes some way to addressing Scoones’ “ten challenges”²² for the way forward for One Health, not just in terms of the human developmental sphere of “poor versus rich”, but also ensuring that animal and ecosystem health are not forgotten in the “whose health matters” debate, given

¹⁹ The title theme of the high profile “Winnipeg meeting” held in Canada 2009 (see Appendix I)

²⁰ As opposed to a normative view

²¹ Pertinently discussed in Scoones (2010), also touched upon by others for example Okello *et al* (2011)

²² As outlined in Scoones (2010:207) Chapter seven: *Towards a One World, One Health approach*

the “*severe bias currently towards human health at the expense of the other two*”
(personal communication).

CHAPTER TWO:

THEORETICAL FRAMEWORK AND METHODOLOGY

2.1 Introduction: Hypothesis and Research Objectives

The drive by One Health advocates to promote, amongst other institutional innovations, the creation of inter-ministerial platforms for zoonoses control is well founded, buoyed by calls within the global health governance community to move away from vertical disease control initiatives towards multi-disease programmes²³. However, whilst theoretically and (arguably) economically attractive, significant political commitment is required for this to be practically realised; particularly in developing countries where health priorities compete for attention and programmatic funding.

To this end, my hypothesis states:

The practical realisation of One Health as a framework for global health is inherently more complicated than implied in current international dialogue, given its dependence on the mutual agreement and co-operation of a wide range of nations, sectors and actors whose mandates and priorities greatly differ.

²³ As discussed in chapter three: “Global Health Governance – Where does One Health fit?”

Given the escalation of One Health “talk” in recent years, I felt it prudent to try and understand how some of the recommendations ensuing from the “high profile” international meetings²⁴ could be practically realised on a continent as diverse and challenging as Africa. This chapter therefore serves to outline the methodological approach taken towards the research, whilst at the same time explore and explain the underlying theoretical framework and background information central to my data collection and analysis.

The bulk of the empirical data was collected through a series of field trips to both Uganda and Nigeria as part of my involvement with the five year Integrated Control for Neglected Zoonoses (ICONZ) project, funded by the European Commission. The project has a broad overall objective to gather prevalence data and subsequently raise the profile of neglected zoonotic diseases²⁵ in Africa. Besides the strong epidemiological component, further outputs surrounding socioeconomic, gender and political questions are also anticipated. In this way, the thesis structure is set out as a series of three empirical chapters, each looking at the international, national and local context of One Health in turn.

I started with a generic desire to greater understand “this One Health concept” which had suddenly exploded onto the international agenda. Despite understanding the appeal of the fundamental objectives of such an approach, I was interested how it would work in practice, perhaps given my previous experience of both African and

²⁴ Outlined in Appendix 1

²⁵ For example brucellosis, rabies, bovine tuberculosis, Leptospirosis, anthrax and porcine cysticercosis (WHO 2009)

South Asian veterinary systems. A preliminary literature review uncovered that despite seemingly endless publications promoting One Health as “the new professional imperative”²⁶, the reality was that few examples of the successful adoption of One Health practices existed, particularly in sub-Saharan Africa²⁷. It was upon this basis that I wished to understand more about how One Health could be practically realised on the ground, in locally relevant ways. Looking more outwardly, I was interested in injecting a “dose of reality”²⁸ into prospective One Health policies, felt by some to be lacking in most agricultural policy in Africa (Omamo 2003).

As a starting point, I felt effort should be made to address the following four broad objectives within the thesis:

1. Identify the current process by which animal and human disease control policies are developed; that is the *how* of policy, rather than the *what*.
2. Attempt to understand the requirements for the realisation of One Health in high risk rural communities, particularly pertaining to advocacy and control of endemic zoonotic diseases in areas with limited animal and human health resources
3. Examine the motivation for developing countries to contribute to the growing international drive for One Health; particularly given its focus on emerging infectious diseases²⁹ and their potentially limited relevance to

²⁶ Title of the AVMA’s One Health Initiative Task Force final report, July 2008 (AVMA 2008)

²⁷ Notable published exceptions include work done in Chad (Zinsstag and Tanner 2008)

²⁸ From Omamo (2003)

²⁹ In particular HPAI

Africa's extensive rural systems where the majority of health funding is required.

4. Examine the types of evidence and advocacy necessary for the adoption of One Health as a global framework to address the disease challenges of the 21st century.

Using a comparative case study methodology, I wanted to examine these aspects in a similar light to that used by Keeley and Scoones, amongst others, within the large body of work surrounding environmental policy at Sussex University's Institute for Development Studies (IDS); that is, question how 'global' debates play out in 'local' policy contexts, and vice versa, how local views are incorporated into the global network (IDS 2006). More specifically, I was interested in how the international One Health momentum was being perceived or adopted within the national ministries of health and agriculture in two African countries, and, at the global level, how the One Health Global Network (OHGN)³⁰ plans to achieve a truly "global" membership. At the same time, I was keen to obtain a greater insight into the more general issues I have seen in the African agricultural sector for some years: why is the African livestock sector in such disarray, why are so many livestock disease control policies unimplementable and seemingly irrelevant, and why the lack of consultation with livestock producers in the development of biosecurity models?

Through breaking down the policy processes and trying to understand how current disease control policies are developed, funded and implemented in both the

³⁰ Discussed in Chapter Three

Ministries of Health and Livestock, and how – or where – the two may combine their approach, I wanted to identify where One Health could be considered in the future. There is an undisputable need to understand the policy process in this instance, particularly when advocating for a particular approach, or trying to instil a global “best practice” for snowballing movements, such as that seen with One Health in recent years. In essence, I wanted to understand the underlying “political economy” of policy making concerning livestock and public health policy in Nigeria and Uganda; “who gains, who loses and who calls the shots” (Scoones 2010). Through understanding the processes involved, I could then begin to comprehend the questions which had puzzled me for a number of years working in the African livestock sector; not so much the “who” is missed out in the process, but the “why” (Scoones 2010).

2.2 Global Health Policy Narratives: The “Big Three³¹” versus the *Other Diseases* of the Sixth Millennium Development Goal

In 2000, the United Nations Millennium Summit agreed upon the eight Millennium Development Goals (MDGs) developed to provide a “basis upon which a policy framework for interventions and advocacy for increased emphasis on improved health is based” (Molyneux, 2008). The sixth goal “to combat HIV/AIDS, malaria, and other diseases” has led to large scale financial interventions aimed to address the issues of infectious disease and their contribution to poverty. However, concerns

³¹ HIV/AIDS, Malaria and Tuberculosis

have been raised that these *other diseases*, known as the Neglected Tropical Diseases (NTDs), have been “conspicuously ignored”, leading to the view that “if the planet was viewed by aliens (HIV/AIDs, malaria and tuberculosis) would be seen as the only diseases that existed” (Molyneux 2008). The group of thirteen, often co-existing NTDs include schistosomiasis, Human African Trypanosomiasis, onchocerciasis and trachoma. Despite estimations they account for more than half a million human deaths every year, it is their clear linkages to poverty³² which makes their *neglect* “difficult to rationalize” (Hotez 2009, Maudlin *et al* 2009).

In 2005, the UK Commission for Africa recommended the NTDs receive specific funding as a group, however the recommendations have been “slow to take effect”, with the “big three” still receiving the majority of the world’s attention (Molyneux 2008). Integrated interventions for the control of NTDs have been described as the ‘low hanging fruit’ of the disease world, and should be considered as “investments in human capital” (Molyneux 2008, Canning 2006). Experts agree that cost effectiveness should drive policy recommendations for health budget expenditure in developing countries, rather than the financial and political prioritisation of diseases according to their “global burden” as calculated using tools such as the Disability Adjusted Life Year (DALY)³³ (Maudlin *et al* 2009, Canning 2006). Some have argued that the DALY calculation is not an applicable tool for many diseases found throughout the developing world; as “hidden” morbidities such as anaemia, diarrhoea, loss of work and education opportunities can mask true estimates of

³² Hotez (2009) estimates that “almost everyone in the bottom billion” suffers from at least one NTD

³³ DALY – The number of years lost to a human life from a particular disease due to disability, morbidity or early death. Used to measure “burden of disease”

burden (Canning 2006). Poor estimation of disease burdens are compounded by the vast under-reporting which occurs for many of the NTDs, attributed in part to inadequate health services and poor diagnostics, particularly in poor rural areas where the majority of these diseases are clustered (WHO 2006). As one expert states, “many zoonotic diseases are notoriously difficult to diagnose....there may simply be no reliable and cheap diagnostic test available” (Maudlin *et al* 2009). Ultimately, the under-estimation of neglected disease has resulted in “serious consequences in terms of funding for both research and control initiatives” (Maudlin *et al* 2009). The system of prioritisation for investment into disease control adopted under the MDGs and other significant funding bodies such as the Bill and Melinda Gates Foundation has, despite its logic, seen by some as “not universally accepted as being either fair or sensible” and could be an explanation as to why NZDs are largely forgotten in major Research and Development programmes (Maudlin *et al* 2009).

Despite the challenges, there have been recent indications that the advocacy of a number of NTD “champions” is paying off; in January 2012 the UK’s Minister for International Development announced a \$785 million four year “landmark commitment”³⁴ to address Neglected Tropical Diseases in Africa. Some however are concerned that advocacy efforts have been based on “remarkable claims” surrounding the number of people affected with NTDs³⁵ rather than any real evidence; noting that the “other diseases” of the Millennium Development Goals was “a label that quickly became the focus of intense lobbying”, given the “huge surge of

³⁴The DfID press release can be found here: <http://www.dfid.gov.uk/Documents/publications1/press-releases/NTD%20Event%20-%20Press%20Release.pdf>

³⁵ With a particular reference to Hotez *et al* (2009)

funding” which would ultimately come its way (Allen and Parker 2011). There has also been some criticism about the efficacy of the Mass Drug Administration promoted by NTD networks; notwithstanding the potential issues surrounding drug resistance, empirical evidence from evaluations of MDA programmes in Tanzania and Uganda show a number of sociological issues with the approach (Allen and Parker 2011). This “push and pull” debate about who should do what appears to be a common feature of global health governance in the 21st century (discussed in chapter three), and provides an interesting example of the “squabble” for resources by networks of health actors. In conclusion, type(s) of integration applicable to the local context should be considered in the development of zoonotic disease control programmes, particularly in resource-poor regions. Whilst the need for increased implementation of integrated activities to address NTDs is appreciated, the need for them to “be evaluated in a systematic manner” is highlighted (Grépin and Reich 2008).

2.2.1 Neglected Zoonotic Diseases

In 2008, efforts to raise the profile of NTDs resulted in the publication of WHO’s eight year “Global Plan to combat Neglected Tropical Diseases”, in which the link between neglected diseases, poverty and the Millennium Development Goals was acknowledged (WHO 2007). Within this plan lies a sub-group of diseases formally recognised by the WHO as “Neglected Zoonotic Diseases” (NZDs): Anthrax, Bovine Tuberculosis, Brucellosis, Cysticercosis/Neurocysticercosis, Cystic echinococcus, Rabies and Human African Trypanosomiasis (HAT) (WHO 2009). Endemic zoonotic diseases are common throughout the world, especially in developing countries where

poverty, reliance on livestock for income or food, and the close proximity of people and their animals favour transmission. Additionally, livestock productivity losses or death as a result of zoonotic disease places an even greater strain upon those whose livelihoods depend upon them. In her keynote speech at WHO's landmark 2007 meeting on Neglected Zoonotic Diseases in Nairobi, Esther Schelling cited "dispersed smallholder livestock systems, predominance of informal markets and limited capacity and resources to deliver services" as challenges to their control (WHO 2007). The need for a One Health approach for the surveillance and control of zoonotic disease in developing countries was reiterated, encouraging participants to envisage the future research agenda as "interdisciplinary, participatory and integrated with prevention and control needs" (WHO 2007).

Institutional support for the control of neglected zoonoses is growing; several publications have identified the growing widespread support for their control; "by simultaneously saving lives and securing livelihoods, the control of neglected zoonotic diseases offers a real and highly cost-effective opportunity for alleviating poverty, especially in remote rural communities and marginalized periurban communities" (WHO 2009). A sequence of high profile meetings³⁶ since 2005 have gone some way to increasing the profile of neglected zoonotic diseases within the donor community, helping to secure funding for the five year Integrated Control of Neglected Zoonoses in Africa (ICONZ) project which began in 2009. This 21 partner collaboration funded by the European Commission endeavours to fill vital

³⁶ See the following Reports: WHO (2006) *The Control of Neglected Zoonoses: A Route to Poverty Alleviation* (Geneva); WHO (2009) *Integrated Control of Neglected Zoonoses in Africa: Applying the One Health Concept* (Nairobi) and WHO (2011) *The Control of Neglected Zoonotic Diseases: Community-based Interventions for Prevention and Control* (Geneva) - full citations in Bibliography

knowledge “gaps” which currently exist on the burden of NZDs in Africa, hoping to provide a strong support basis for One Health advocacy and policy activities within these countries.

2.2.2 Current Political and Institutional Challenges of Zoonosis Control in Developing Countries

Major constraints in many developing countries to zoonotic disease control include human resources, finances, and discrepancies within government structures such as decentralisation. As a result, national or regional surveillance and control programmes are often difficult to undertake on the ground (Okello pers. observation, FAO 2008). Government and research institutions, along with animal and human health systems (including those in the private sector) all require strengthening if disease control under a One Health approach is to occur without long term subsidies from the international community. Additionally, advocacy and public sensitisation towards the risk factors for zoonoses are important to ensure that community behaviour change occurs for the long term prevention and control. An additional challenge for implementation of One Health and functioning biosecurity and animal health systems in developing countries is the smallholder farming system which dominates the majority of rural settings, particularly in Africa (FAO 2008). Enhancement of biosecurity and surveillance mechanisms is necessary for the long term sustainable control of infectious disease in poor communities. However, cost, tradition, lack of income diversity and lack of alternatives to current practices are often cited as reasons why surveillance does not occur. Additionally, there may exist a lack of incentive for the smallholder farmer to participate in biosecurity measures,

compared to farmers with commercial establishments where uniform disease control measures may be financially beneficial (FAO 2008).

Despite the perceived challenges of implicating a One Health approach in developing countries, there are positives. This was recognised over a decade ago, with the 1999 Terramo FAO/OIE/WHO Veterinary Public Health conference focused particularly on Countries in Transition (CIT)³⁷ and Developing Countries³⁸ in order to reach a wider audience. There was acknowledgement that despite the greater limitations to Veterinary Public Health services in developing countries, the “opportunities for the collaboration of veterinary and human health activities are recognised as existing across all countries, and are not confined to specific regions, nor do they respect international borders, and they may extend across ethnic and political divides” (FAO 2003).

2.3 Background to the Methodology: Policy Process Theory

As previously described, the methodological approach taken for this research seeks to answer some of the questions surrounding policy *processes*; that is, aims to evaluate the *how* of policy, rather than the *what*. In order to undertake and analyse the research, I have been guided heavily by the work of Keeley and Scoones (1999) amongst others³⁹. Their work on environmental policy processes in sub-Saharan

³⁷ “Countries whose economies used to be centrally planned by the government but are now changing to market-based economies” (FAO 2003)

³⁸ Based on the World Bank glossary, a Developing Country is defined as low (64 countries) and middle (93 countries) income countries in which most people have a lower standard of living with access to fewer goods and services than do most people in high income countries (FAO 2003)

³⁹ For example the research addressed in IDS (2006)

Africa appears to be some of the most comprehensive on this subject (Keeley and Scoones 1999, Young 2005). To this end, there is acknowledgement within the literature that the majority of policy process studies – particularly those concerning research policy linkages - have focussed on Organisation for Economic Cooperation and Development (OECD) countries⁴⁰, with little attention to those developing countries in the “south” (Keeley and Scoones 1999, Young 2005). This serves as part justification for my research; that policy processes in most developing countries – particularly in the public health sector - remain poorly understood, and as such this thesis aims to contribute some discussion to this.

2.3.1 Policy as a Rational, Linear Process

In order to “prise open the black box of policy”, there needs to be some understanding of what policy is, and how it is made (Keeley and Scoones 1999). Despite the plethora of references to policies and policy dialogue in societies across the world, the term *policy* itself is deemed “notoriously difficult to define”; “rather like the elephant; you know it when you see it but you cannot easily define it” (Cunningham 1963, cited in Keeley and Scoones 1999 amongst others). A fairly simplified and explanatory definition of policy is “a purposive course of action followed by an actor or set of actors” (Wolmer and Scoones 2005). Some have proposed a more traditional policy perspective as “whatever governments choose to do or not to do” (Dye 1984, cited in Wolmer and Scoones 2005). Whilst this may apply to some extent, the rising influence of non-state actors in the international

⁴⁰ See http://www.oecd.org/document/58/0,3746,en_2649_201185_1889402_1_1_1_1,00.html for a list of OECD countries (last accessed 24th April 2012)

health sector (discussed in chapter three) means a number of policy decisions may be shaped largely outside of government, particularly in the context of One Health. Mosse (2005) distinguishes between policy as an “instrumental view” of rational problem solving, and the “critical view” of policy as a means to shape, justify or rationalise existing practice; implying the “true political intent of development is hidden behind a cloak of rational planning” (Mosse 2005). Regardless of whether a technical or critical view is taken, the vast differences in the interpretation of “what policy is”, and the analysis of its content, serves to underline the complex and contested health policy sphere of the 21st century.

Rather than trying to explain what policy is, or analyse existing policies within the case study countries, the bulk of the empirical research undertaken for the purposes of this thesis assumes a “critical view” concerned with understanding the *how* of policy making; an approach termed *policy process analysis*. There exists a widely upheld view that policy making is an objective, linear process, whereby policy decisions are based on sound scientific evidence, then implemented accordingly (for example Keeley and Scoones 1999, Sutton 1999). Critics of this model maintain that it is an “inadequate reflection of reality”⁴¹; depicting a separation between the “beauracratc” policy development process and the “technical procedure” of its implementation (IDS 2006). In this way, the “blame” for policy failure is easily laid upon the political or managerial failure surrounding the implementation aspect, rather than the policy itself (Juma and Clarke 1995, cited in Sutton 1999). Expanding this, Foucault’s description of *political technology*, whereby a political issue is

⁴¹ As quoted by Keeley and Scoones (1999)

“removed from the realm of political discourse and recast in the neutral language of science” is also relevant (Sutton 1999). The promotion of policy development as a “neutral and value free” process based on *good science*, essentially acts to “create a mechanism whereby policy makers are absolved from responsibility for the outcomes of a policy decision” (Sutton 1999). Over time, the end result of the application of political technology results in distancing of policy makers from the end-users of their policies, which in a developing country context, could lead to greater marginalisation of already poor people, and in the context of neglected diseases, maintain their neglected status. Exploring policy processes seeks to challenge this rational, linear view of policy, and as such contribute to the body of evidence maintaining that “(t)he whole life of policy is a chaos of purposes and accidents....not at all a matter of the rational implementation of the so-called decisions through selected strategies’ (Clay and Schaffer 1984: 192, cited in Wolmer and Scoones 2005). Although the reality may fall somewhere in between, it is nevertheless important to understand that policy decisions are often as much about the politics as the science, and that blame for policy failure may just as easily lie within the bureaucracy of its development, rather than its implementation (IDS 2006). As reinforced by Scoones, “(b)y exploring the political dynamics of policy-making, the different options and alternatives – sometimes obscured or blocked or hidden – are revealed and the diverse pathways to disease response are highlighted” (Scoones 2010:12).

Another perspective by which it is helpful to understand the policy process is that it relates, although differs in emphasis, to the policy-research nexus. Ultimately

through gaining an understanding of what constitutes “evidence” for policy, there is the potential to help improve research design in the livestock and/or public health sectors, resulting in greater utilisation of research efforts in this area. Many have complained of the “wastage” of research efforts, particularly in Africa, stating “most policy research on African agriculture is irrelevant”⁴², whilst others acknowledge the need for greater understanding of the policy process in order to better communicate research findings (Aberman *et al* 2009).

2.3.2 The Policy Process Framework

A series of workshops⁴³ led by the Overseas Development Institute (ODI) in the first part of last decade resulted in the identification of four key areas where the policy process in developing countries could potentially be heavily influenced: the political context, problems of research supply and communication, “exaggerated” donor influence and civil society organisations (Young 2005). My empirical data collection therefore aimed to further explore these key areas in light of the growing One Health movement. The literature⁴⁴ alludes to three “broad approaches”⁴⁵ which can be used to understand the policy process:

- i) Narratives: Shifting discourses as a result of history or “practice”
- ii) Actor-Networks: Capacity of individual actors to “make a difference”
- iii) Politics and Interests: The interaction between state and civil society

⁴² From Omamo (2003)

⁴³ See <http://www.odi.org.uk/rapid/events/> (last accessed 21st June 2012)

⁴⁴ Keeley & Scoones (1999), Wolmer & Scoones (2005) amongst others

⁴⁵ Summarised from IDS (2006)

The work of Keeley and Scoones attempts to somewhat integrate these three perspectives, highlighting the ways in which actors develop certain policy narratives within a political context which at the same time constrains them; a necessary understanding considered to be at the “heart of the policy process” (IDS 2006). This framework therefore served as the lens through which I attempted to understand the context of zoonotic disease policies in Nigeria and Uganda, and the possible progression of One Health policy within these countries through understanding:

i) The *dominant narratives* or “stories” concerning zoonotic disease policies in Nigeria and Uganda. In particular, given the hugely technical subject of disease control, I was interested whether “strong science” was the dominant force behind policy development and implementation strategies, and if not, what other narratives were playing out and why.

ii) *Actor-Networks*; who is involved in the policy making process in Nigeria and Uganda, and how are they connected?

iii) *Politics and Interests*; Keeping in mind Scoones “all policy narratives must be understood in context.....tussles over the way forward are as much about politics as they are science” (Scoones 2010: 12), I aimed to identify the political environment in which zoonotic disease control policies are currently developed in Uganda and Nigeria, and whose interests currently dominated the process, particularly in light of One Health?

Through looking at these three approaches, I hoped to gain some insight into how the “evidence” for policy is interpreted within the various governance networks which contribute to livestock and public health policy development in these two countries. In this way, I hoped to increase my understanding of why certain decisions have been made, whilst others, often despite the scientific evidence to the contrary, have been excluded.

2.3.3 Policy Spaces

Understanding that critical intersection between narratives, actors and the political environment can lead to the identification of what is termed *policy spaces*; loosely defined as the extent to which policy makers are restricted in their decision making by other influential actors or narratives (Wolmer and Scoones 2005). It is argued that understanding the policy process can help identify “weaknesses” within these networks or narratives that can be utilised to advance an alternative view, thus potentially lead to policy change (IDS 2006). In the case of One Health, I was interested to identify whether spaces existed to promote more holistic approaches to human and animal health policy in Africa; and whether greater interaction between the local, national and international levels for changing and influencing policy was feasible. I suspected that currently, policy spaces for One Health *did* exist, however was interested in the extent to which these would further open up – or potentially close down – given the growing movement in One Health globally, for example if One Health approaches became mandated in donor health programmes.

Whilst arguably a no-brainer – “*who doesn’t want One Health*”⁴⁶ – the reality of instilling change of practice in often traditional ministries, largely represented by a generation of older, more conventional medics and veterinarians, may not be easy. Through examining the various policy processes by which human and animal disease control policies are prioritised, developed and implemented in Uganda and Nigeria, I hoped to gain an insight into how actors and networks involved in policy making in these countries could better liaise in the area of zoonotic disease, to achieve a more holistic One Health approach, and thus better link in to what is happening at the international level. I wanted to understand whether greater participation of marginalised communities affected by livestock and health policy could be accommodated, and if policy change is possible, how to go about it?

2.4 Research Design: Comparative Case Study Approach

The research methodology undertaken within this thesis subscribes to the general approach to applied sociological research, as set out in Blaikie (2010:42). Within this broad framework, I felt a Case Study ⁴⁷ methodology - defined as “in-depth investigations of a single instance of a phenomenon in its real life context”⁴⁸ - would enable the most logical presentation of the empirical data,. I was however reassured by James Coleman’s famed declaration “There is no body of methods; no comprehensive methodology for the study of the impact of public policy as an aid to future policy” (Coleman 1972, cited in Rist 1994). A multiple case-study approach was used to collect the empirical data in two contrasting African settings; one in a

⁴⁶ Comment from ICONZ Management Board meeting during a discussion on a newly funded EU One Health advocacy project

⁴⁷ See also Blaikie (2010)

⁴⁸ Yin (1994)

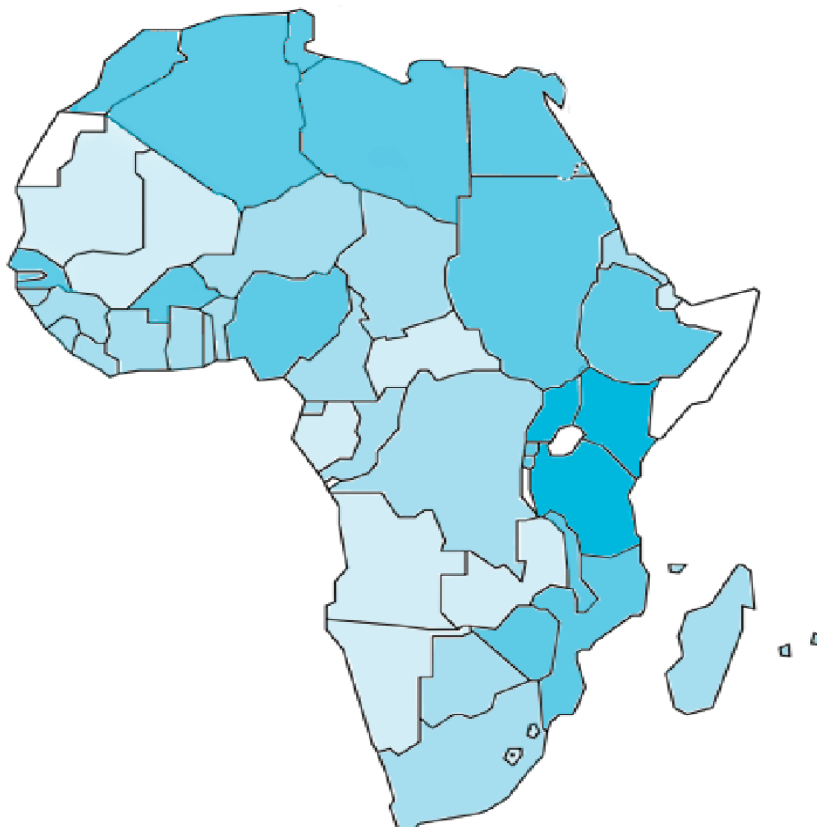
settled mixed-farming area of eastern Uganda, the second in a pastoralist cattle-keeping community of central Nigeria. Both these countries are relevant to the One Health debate, given their higher than average burdens of zoonotic diseases (Map 1), however the pastoralist Fulani of Nigeria exhibit profound differences in culture and attitude compared to the mixed farming communities which were the research focus in Uganda, thus serving as an acceptable base for comparison between the two.

The case studies were broadly framed around two sets of “field level” data collection involving focus group discussions in Uganda and Nigeria, plus the “national level” data collection which occurred through the use of key informant interviews in various ministries and institutions in the respective countries (see 2.5). This gave rise to the multi-level presentation of the general arguments in the two empirical chapters; however the nature of the propositions meant the discussion fell naturally towards the “national” perspective in Uganda, and the “local” perspective in Nigeria. Aspects of Burawoy’s *extended* case study methodology can be felt quite strongly throughout the research approach. Burawoy describes the extended case study as a reflexive approach to ethnography whereby the researcher is closely engaged with the subjects. In this way, the methodology denounces the positivist⁴⁹ approach in order “to extract the general from the unique, to move from the “micro” to the “macro” and to connect the present to the past in anticipation of the future” (Burawoy 1998). The extended case study methodology therefore paints a picture of several “layers” of dialogue; between the researcher and participants at the first level, interpreted and embedded in a second dialogue describing forces and processes

⁴⁹ An alternative research approach whereby the researcher maintains distance from the subjects, described as “limiting our involvement in the world we study” (Burawoy 1998)

outside of this first level, ultimately analysed within a third layer of theory (Burawoy 1998).

Map 1: Distribution of Zoonotic Disease in Africa⁵⁰ (WHO 2009)



Case studies are defined as “in-depth investigations of a single instance of a phenomenon in its real life context” (Yin 1994). A multiple, embedded case-study methodology has been used to collect the empirical data in two contrasting African settings; one in a settled mixed-farming area of eastern Uganda, the second in a pastoralist cattle-keeping community of central Nigeria. Both these countries have reported higher than average burdens of zoonotic diseases (Map 1). I felt the contrast

⁵⁰ The darker the colour the greater number of diseases have been reported; according to the key Nigeria has reported three of these zoonotic diseases, Uganda has reported more than three (out of a selected group of five zoonoses)

between these two socioeconomic settings would be an interesting base with which to undertake a comparative study under the wider “international” umbrella of the first proposition. Despite the overlying social, economic and animal health similarities in these two sub-Saharan African countries (Table1), the pastoralist Fulani of Nigeria exhibit profound differences in culture and attitude compared to the mixed farming communities which were the research focus in Uganda.

Table 1: Comparative Country Statistics (2010) at a Glance⁵¹

	Nigeria	Uganda
Land size and Type	923.8 km ² (37% arable)	241.6 kms ² (70% arable)
Human Population (millions)	158.4	33.4
Economy GDP (PPP)	\$377.146bn (rank 30) Agriculture 40% GDP	\$42.215bn (rank 90) Agriculture 15.4% GDP
Poverty Indicators	HDI rank 156 84.5 % below \$2 (PPP)/day	HDI rank 161 64.7% below \$2 (PPP)/day
Life Expectancy at Birth	51.4	54
Infant mortality/1000 births	88.4	63
Total adult Literacy rate (%)	61	73
Ethnic groups	250	>13
Religion	Muslim 50%, Christian 40%, Other 10%	Muslim 12%, Christian 85%, Other 3% other
Livestock (millions)	Cattle: 16.3 Goats: 53.8 Pigs: 6.9 Poultry: 174.4	Cattle: 11.4 Goats: 12.5 Pigs: 3.2 Poultry: 37.4
Government and Political Structure	Federal republic, democracy	Republic, semi- authoritarian

⁵¹ Sources: World Bank Development Reports, United States Department of State website, National livestock Censuses (Inspired by Scoones 2010)

These varying approaches to livestock keeping in vastly different environments and cultures provide a basis for which to capture the potential multiple “faces” of One Health, whilst at the same time despite the individualities, explore the more general comparisons which can be made to help drive forwards the approach and increase its appeal to a wide variety of situations and audiences. Moreover, within the overlaying context of the dominant international One Health narratives, I wanted to triangulate the various “local level” perceptions of current livestock and public health plans with that of individuals in the “driving seat” of national agricultural and health policy development in these two countries. My aims to understand and communicate this “insider” view of the development and effects of policy were consistent with an abductive research strategy, whereby the researcher “aims to discover why people do what they do” (Blaikie 2010:89). Taking this a step further, I was then interested to evaluate the relevance of One Health events unfolding at the global level to those at the national level of government in these two very different social, political and environmental settings in Africa.

2.4.1 Generalisability

Use of the case study in the field of agricultural policy research has been criticised by some, largely due to its potential for specificity to a local situation or area (Omamo and Farrington 2004). Blaikie, however, argues that the same issues surrounding generalisability could occur with any study of a single experiment or population (Blaikie 2010: 192). He expands on this by also questioning whether one *wants* to generalise, and if so, suggests it can be done either through researching “typical” cases, or, as has been attempted in this thesis, to select a number of cases across

similar sites (Blaikie 2010: 193). Overcoming issues of generalisability through the use of a multiple case study methodology has also raised concern that establishing “comparability” is extremely difficult; however it is possible that “interpreted carefully, (multiple case studies) can often be seen as local manifestations of a much more general set of problems, and so can illuminate these” (Omamo and Farrington 2004). Although very different in terms of livestock practices, culture and environment, it could be argued that – should I want to generalise – the frameworks around which my empirical research was gathered in Uganda and Nigeria are in fact quite similar. Both frameworks concern sub-Saharan African countries which, despite obvious differences in ethnicity and populations, are faced with similar issues of poverty⁵² and potentially valuable, yet neglected, livestock sectors. Moreover in terms of policy, the state of the health and veterinary sectors in both countries epitomise the weaknesses common to these systems across much of sub-Saharan Africa, and as such will face similar institutional challenges should a One Health approach be promoted in future. For the purposes of this study, I strongly feel that the evidence gained in terms of how policy is made and who the major actors and influences are, could in fact be applicable to any number of sub-Saharan African countries, and as such, generalisations could still be made. Yin (2003) supports this through his notion of *analytic generalisation*, whereby plausible links between multiple case studies can arguably be demonstrated if they both correspond to and support a previously generated theory (Yin 2003, cited in Blaikie 2010:194).

⁵² See Table 1 Comparative Country Statistics

2.4.2 Reflexivity and my stance within the research

Blaikie (2010) describes six possible stances a social researcher can adopt, elaborated from his previously described three basic positions; outside expert, inside learner and reflective partner (Blaikie 2010: 50). Within these stances, the one I felt most adequately reflected my approach to much of the empirical data collection was that of reflective partner. In keeping with this position, I have tried to “produce a polyphony of voices rather than a single voice”, in order to reduce “authorial bias” and misrepresentation within the thesis narratives (Fontana 1994, cited in Blaikie 2010: 52). Particularly applicable to my approach towards the focus group discussions, I aimed to combine my understanding of the situation with the “everyday lay concepts and meanings” as experienced by the variety of actors I spoke with on a number of open-ended discussions (Blaikie 2010:84). In this way, my epistemological assumptions aligned with that of constructionism, which loosely argues that as “knowledge” is the result of ordinary people making sense of the world around them, there are “no permanent criteria for establishing whether knowledge can be regarded as true” (Blaikie 2010: 95). In essence, I wanted to capture the everyday knowledge, attitudes and practices of people involved in these systems in Africa, and elaborate it in the context of that which others had described, and what I myself had witnessed from living on the continent for the last five years.

Despite being a “mzungu⁵³” and therefore, through its very definition an outsider, I certainly felt to be more involved with my research subjects than that of detached, or even empathetic, observer. Possibly this was due to the fact that I was hearing

⁵³ Swahili colloquialism for “white”, used to depict a person of white western origin

remarkably similar accounts of the issues surrounding the sub-Saharan livestock sector from the Ugandans and Nigerians that I had heard in previous years working in Mali, Ethiopia and Kenya to name a few. Perhaps a certain level of respect – and thus a potentially deeper engagement - was earned through my profession; it is rare that farmers anywhere get the chance to sit down and discuss their livestock health issues with a veterinarian, particularly without payment. And I cannot ignore the fact that my Kenyan surname comes from a large ethnic group which also inhabits the area of Uganda where that part of the research was carried out, and whose roots are in Nigeria. Given the strong familial connections in Africa, I was afforded a unique place in the research; one could even say a certain level of automated trust by government officials and villagers alike, which does not come easily to most first time visitors to an area. Finally, I always allowed time within the interviews for participants to ask me questions also; more often than not personal questions were keenly asked, and this helped develop a good rapport with the informants; allowing the process to feel less extractive. Although I wouldn't go so far as to say I was a dialogic facilitator⁵⁴, I did make some effort to interact with the communities and subjects of my research more intimately than purely from an observer's standpoint. In this respect, I was comforted by the notion of active reflexivity being an “essential” feature of qualitative research (Mason 2002, cited in Blaikie 2010:53):

“a researcher cannot be neutral, or objective, or detached from the knowledge and evidence they are generating”

⁵⁴ A research stance whereby “the emphasis is on the dialogue between the researcher and the researched”; the stance furthest from the position of “expert” (Blaikie 2010: 50-52)

2.5 Data Collection and Analysis

Primary empirical data for the two national level case studies in Uganda and Nigeria was obtained through a series of qualitative data collection methods, including focus group discussions and semi-structured key informant interviews. In the Nigerian case study, a small proportion of secondary data was also analysed⁵⁵. In order to examine the ways in which national and global activities are reflected (or not) at the local level, I wanted to consider how the views and attitudes of government decision makers compared and contrasted to that of the communities they are supposed to represent. For this contrasting approach to be realised, I required access to participants within the rural communities, along with officials from the ministries of health, agriculture and any other sector which presented itself with the opportunity, for example academia. As such, a combination data collection technique was used, whereby focus group discussions within a natural social setting was the unit of study at the local level, compared to key informant interviews within the semi-natural settings of the Ministries of Health and Agriculture at the national level. Verbal consent was obtained prior to each interview, and all data gathered was treated according to the protocol for collection and storage methods outlined in the ACT Consortium Manual for Qualitative Data Analysis (Chandler 2009). Direct quotations from the empirical evidence is shown throughout this thesis in italics within double quotation marks, whereas quotations from secondary sources of information such as books, documents, questionnaires or journal publications appear within double quotation marks, however are non-italicised.

⁵⁵ Five qualitative questionnaires on policy processes were undertaken by Dr. Ayodele Majekodunmi (CIDLID co-ordinator) in 2010 as part of her wider PhD research, and subsequently handed on to me for analysis and inclusion in the Nigerian case study.

In terms of data analysis, the same methodology was used for data collected both via focus group discussions and key informant interviews. All interviews were taped⁵⁶, then the complete transcripts written out from the tape recordings. As the key informant interviews were all conducted in English, this posed no problem for the transcripts. The FGDs were however conducted in local language with an English translator, therefore the transcripts consisted of the English only in these recordings. This was not ideal; I would have preferred these recordings to be transcribed directly from the participants' comments using a local translator, however the resources required for the many weeks' work this would have taken (almost 30 sessions involving around 270 participants and over 50 hours of recordings) could not be justified within the financial scope of my research, so had to settle for transcripts of the translations. Where possible I checked and cross-checked the information at the time of interview to ensure what the participants were saying was accurately translated.

Once the transcripts were completed, I attempted the use of NVivo© software for analysis, however felt that my efforts to analyse the various classifications within the rigid software programme were taking away from the true understanding and context of the content. After several attempts at the software I opted instead to print out all the transcripts double-spaced, and manually group statements according to subject (and often context), similar to the use of nodes and sub-nodes in the software. In terms of the analysis of the actual *content* of the quotations and materials, I remained aware of the possible limitations to understanding and teasing out the underlying

⁵⁶ Minus the one informant who declined taping of the interview, for which the transcript consisted of my handwritten notes annotated with speech marks for direct quotations

discourse, in as much as any analysis of individual human thought and motivation is limited. The reality in this type of work, particularly as an “outsider”, is that people may not always divulge their true opinions or feelings; hence it is within this limitation that my analysis and subsequent presentation of the empirical data lies.

2.5.1 “Global” Level Data Collection (Open-ended Questionnaires, Document Analysis)

The empirical evidence of the One Health “global perspective” discussed in chapter three is largely a result of a analysis of secondary data. Attendance at a large number of One Health meetings, conferences and plenary sessions has given me a good insight into the currently evolving thinking surrounding One Health, and the major debates playing out at the international level. Secondary data was largely obtained through my experiences with the development of the One Health Global Network (OHGN); one of six working groups to come out of the 2010 Stone Mountain Meeting. Attempts to gain individual reaction to formalising this array of existing networks through the One Health Global “network of networks” was initiated via a semi-structured questionnaire, sent around by Dr. Alain Vandersmissen⁵⁷ to a number of professionals within the human health, veterinary, policy and government sectors. The questionnaire aimed to seek individual views on the possible functions of a One Health Global Network, and within this, participants were able to expand on their ideas as to what actually means, thus presenting some insight into the evolving international perceptions. My role within this was to provide an objective synthesis

⁵⁷ Senior Co-ordinator Influenza, One Health and Emerging Diseases, European External Action Service of the European Commission, and also the co-leader of the OHGN working group with Dr. Carol Rubin of the CDC

of the answers⁵⁸ which was subsequently circulated to a large number of individuals within the international One Health community and referred to in the public domain (for example Normandeau, 2011).

My role in the One Health Global Network, of which I also participated as an observer, was largely due to my corresponding employment with ICONZ. I assisted Dr. Alain Vandersmissen with general co-ordination of meetings and materials, and as such was able to attend the inaugural “Expert Meeting on One Health Governance and Global Network” in Atlanta 2011⁵⁹ as a University of Edinburgh representative. In terms of separating my stance as a researcher with that of a One Health “stakeholder”, I feel my status as observer allowed me to keep a more critical distance than if I had been participating as a member of the tripartite (WHO-OIE-FAO) or other actor with a greater historical, financial or political stake in One Health⁶⁰. Ultimately at the global level, I wanted to understand the unfolding dialogue within a number of epistemic communities surrounding global “governance” of One Health, and its relevance to the majority of nation-states. I felt including some of this secondary and observational data gave weight to the thesis in terms of my critical analysis behind the wide range of interpretations as to what One Health actually means, who is invited to participate in the dialogue, and what different actors (including nation-states) want out of the process.

⁵⁸ As discussed in chapter three of this thesis

⁵⁹ The report of which can be accessed here http://eeas.europa.eu/health/docs/2011_report-experts-atlanta_en.pdf and is also cited in the bibliography of this thesis

⁶⁰ The advocacy timeline in Appendix 1 presents a good account of the history of One Health international meetings and the high profile role of various stakeholders as hosts, donors and authors

2.5.2 “National” Level Data Collection (Semi-Structured Interviews)

Empirical data at the national ministerial level was collected largely through a snowball sampling technique (see Blaikie 2010:179). Given the relatively “closed” doors, suspicion (especially of foreigners) and lack of time common to most government officials in African ministries, snowball sampling was deemed the most sensible – and in many instances the only available - technique to ensure that I actually secured the interviews. In both Uganda and Nigeria, I started with one or two initial contacts and as I spoke to more people, the numbers of “who I should talk to” escalated from there. Although meetings were difficult to set up in advance, I found that once I arrived in the country things progressed relatively smoothly; people I had already interviewed were overwhelmingly supportive of me making further contacts within the ministries, often passing on phone numbers and in two cases personally calling their peers to arrange another interview for me.

Interviews were largely conducted within ministerial offices once verbal consent to interview and tape the interviews had been obtained. In order to establish rapport with the government representatives and relax them initially, I emphasised confidentiality of the interview content; some of the key informants who were high officials of the MoH or international organizations preferred not to be identified. Since assuring informants the interviewee would remain anonymous, I have only referred to quotations throughout this thesis as simply the date, and the ministry from which the informant is based. After initial apprehension from some informants⁶¹, I

⁶¹ One interviewee “joked” that had he known I was a “mzungu” he would never have agreed to an interview

found interviews to be extremely positive once they were in progress, with only one instance where the informant did not consent to their interview being recorded.

Box 1: Discussion Topics Semi-Structured Interviews

THEMES DISCUSSED IN KEY INFORMANT INTERVIEWS

- Awareness and/or Interpretation of One Health and its relevance to the ministry
- Current processes by which policy narratives are developed and implemented within the ministry/institution
- Perceived impact of health and livestock policy on rural communities
- Current level of intersectoral collaboration for zoonotic disease surveillance and control, and any available or potential platforms
- Role of government and other actors in zoonotic disease control
- Opinions/ideas surrounding policy recommendations and implementation for “One Health”

The primary objective of the key informant interviews was to understand the process by which livestock and zoonotic disease control policies were developed, and obtain a greater understanding of the policy processes and level of inter-ministerial collaboration which currently occurs for zoonotic disease control. Taking this further, I wanted to establish where, if anywhere, the potential existed for policy spaces to “open up” to include formally endorsed and funded One Health approaches, for example inter-ministerial platforms for disease control. The

checklist of general themes I wanted to discuss with key informants is listed in Box 1 (page 65). Ultimately, in addition to understanding the processes by which policy was made in their respective ministries, I wanted to ascertain the priority informants placed on One Health (and public health in general given the overwhelming pressure to address HIV/AIDS, malaria and TB in these countries), and the likelihood of formal interministerial agreements on health becoming a reality outside of donor funding. Particularly given the decreased focus and funding towards avian influenza by the international community, I was interested to gauge the perceived medium term impact of the numerous One Health trainings and resources. Finally, given most neglected zoonoses affect poor rural communities I wanted to ascertain how “connected” my ministerial informants – particularly at the national level – were with the on-ground realities of promoting and achieving “good community health” in their countries, and the impact of health decisions particularly at the central level. Despite these seemingly set checklist of priorities, the key informant interviews ended up being quite unstructured in many cases. I usually allowed the interview to follow its natural path, particularly where informants were willing to elaborate on certain topics; informants all had a specific role or expertise within their ministries or institutions, and more often than not could offer detailed information in one area over another. I felt that by sticking too rigidly to a set of interview questions I would lose the interest of the informant, and also potentially miss out on valuable information if we both felt constricted by the questions.

2.5.2.1 Uganda National Perspective: Key Informant Interviews

A total of 13 key informant interviews were held with officials from the ministries of health and agriculture (MAAIF), plus individuals from academia and the private sector. Generally it was easier to secure interviews in Uganda compared to Nigeria, due to the close working relationships with the University of Edinburgh which gave me a starting point from which I could snowball. I was well received in Uganda; the only frustration being the amount of time spent waiting in government ministries for people to show.

Table 2: List of Key Informant Interviews Uganda (names withheld)

Informant	Institution	Sector	Position
A	Central Ministry of Health	Neglected Tropical Diseases	Commissioner
B	Central Ministry of Health/World Health Organisation	Zoonotic Disease (Human African Trypanosomiasis)	Government Representative
C	Central Ministry of Health	Veterinary Public Health	Veterinary Officer
D	Central Ministry of Agriculture (MAAIF)	Veterinary Public Health	Assistant Commissioner
E	Central Ministry of Agriculture (MAAIF)	Livestock Health and Disease Control	Assistant Commissioner
F	Central Ministry of Agriculture (MAAIF)	COCTU	Deputy Director
G	Central Ministry of Agriculture (MAAIF)	Livestock Health and Entomology	Senior Entomologist
H	Academia	Veterinary	Associate Professor
I	District Ministry of Agriculture	Livestock Health and Disease Control	District Veterinary Officer
J	Sub-county Ministry of Agriculture	Livestock Health and Disease Control	Veterinary Officer
K	Local Government Authority	Health	Nurse
L	N/A	Livestock	Private veterinarian
M	Local Government Authority	Livestock	Animal Health Technician

2.5.2.2 Nigeria National Perspective: Key Informant Interviews

Data from a total of twelve interviews (seven primary sources, five secondary sources) were used to gather policy perspectives from members of the Nigerian Ministries of Health and Agriculture, at both the state and federal levels of government. Informed verbal consent was obtained prior to the commencement of each interview, and informants were guaranteed anonymity should they so wish.

Table 3: List of Key Informant Interviews Nigeria⁶²

Informant⁶³	Institution	Sector	Position
A	Federal Ministry of Health	Neglected Tropical Diseases	National Project Coordinator, Public Health and Special Projects
B	State Ministry of Health/World Health Organisation	Epidemiology	Desk Officer
C	Federal Ministry of Agriculture	Veterinary Public Health Division	Deputy Director
D	Federal Ministry of Agriculture	Department of Livestock	Assistant Director
E	State Ministry of Agriculture	Department of Livestock	Chief Veterinary Officer
F	State Ministry of Agriculture	Veterinary Public Health Division	Desk Officer
G*	State Ministry of Agriculture	State Veterinary Hospital	Senior Veterinarian
H*	State Ministry of Agriculture	State Veterinary Hospital	Technician
I	Private Sector	Health	Medical Doctor
J*	Private Sector	Veterinary	Veterinarian
K*	Research Institute	Livestock Development	Livestock Superintendent
L*	Research Institute	Veterinary Extension Office	Head of Department

⁶² Names have been withheld for anonymity

⁶³ An asterisk (*) depicts where secondary data was used, previously gathered by my research counterpart Dr. Ayodele Majekodunmi

Whilst interviews at the state level of government were relatively easy to secure given my association with both the ICONZ and Combating Infectious Diseases in Livestock for International Development (CIDLID)⁶⁴ projects, I did not have any contacts at the federal level when I first started. However, a lucky break came in the form of a conference in Ghana a few days before I was to return to Abuja; over coffee I was talking to a Nigerian veterinarian and joked whether he knew anyone within the Ministry of Agriculture there, as I was interested in conducting some policy research through CIDLID and ICONZ Work Package nine. Within minutes I was speaking on the phone to the Assistant Director of Nigeria's Federal Department of Livestock, and arranged to meet him in Nigeria two days later. From this meeting, I was able to secure other interviews within the Ministries of Health and Agriculture through snowballing; a testimony to the co-operation and openness of Nigerian government officials which I found existed beyond my stay in the country.

2.5.3 "Local" Level Data Collection (Focus Group Discussions)

Focus Group Discussions are qualitative interview techniques where a homogenous group of participants (usually around 6-12) discuss selected topics assisted by a moderator (Tynan and Drayton 1988). Focus groups are used in a variety of sectors, both public and private, and are especially popular in the health sector to help assess public understanding of illness and health education messages, and experience of health services (Kitzinger 1995). At this level, I was particularly interested in the level of knowledge within rural communities about how policy was made at the

⁶⁴ Funded by a £1 million Biotechnology and Biological Sciences Research (BBSRC) grant to undertake research into trypanosomiasis on Nigeria's Jos Plateau

various levels of government, and the levels of individual participation which occurred within these processes. I also wanted to know about any current livestock policies, particularly concerning veterinary treatment and quarantine that were enforced within these communities, and how it affected them. Finally, I wanted to understand community knowledge and perception on zoonotic diseases and their control, along with their attitudes towards the proposed interventions in that particular study area⁶⁵. Box 2 (page 70) depicts the original focus group checklist I developed before going to the field, included here as it outlines the original key issues I wanted to discuss with participants⁶⁶:

Focus Group Discussions were conducted through a facilitator/translator in both Uganda and Nigeria. Although fluent in the local language, the facilitators in both cases were not from the area specifically. The two different facilitators used in Uganda (corresponding to the two groups of fieldwork in Serere and Soroti districts) both had a veterinary background, whilst the one in Nigeria did not. Prior to the beginning of the FGDs, the facilitators explained the research and reason for gathering of the people, and verbal consent was obtained for participation and recording of the session. No written consent was obtained, as I feel this may have formalised proceedings to the extent of possible bias given the quite politicised settings in both countries⁶⁷.

⁶⁵ In Uganda, this is restricted application protocol (RAP) and trypanocidal drug administration to cattle against animal and human trypanosomiasis. In Nigeria, at the time it was anticipated that a brucellosis vaccination programme would be implemented, although this is still being decided at the time of writing.

⁶⁶ The expanded checklists used in the fieldwork are found in the appendices at the end of this thesis

⁶⁷ Fulani culture in Nigeria, and the semi-authoritarian rule in Uganda

In terms of conduction of the FGDs, I have been formally trained in facilitation and Participatory Rural Appraisal (PRA) techniques and have good experience in the use of these approaches in similar settings⁶⁸. I tried as much as possible to ensure all participants were able to contribute, despite the presence of dominant individuals as is the norm in most participatory activities. There were of course times when local culture needed to be respected; particularly in the case of Nigeria it was the cultural norm for group elders to “speak for the rest of the group” as the younger members listened. As is expected, the use of translators meant that I couldn’t engage with participants as fully as would be possible had I spoken the same language, however despite this I attempted to engage as fully as possible through active listening and maintaining humility.

2.5.3.1 Perception of Risk

Another critical body of information I hoped to contribute to with this research is the notion of community “risk perception”; “the judgements people make when they are asked to characterise and evaluate hazardous activities” (Slovic 1987). The importance of understanding why people behave the way they do, in this case in terms of their response to zoonotic disease, cannot be underestimated. There is much emphasis in current public health programmes on the risk *factors*; for example, do people realise drinking raw milk is a risk factor for brucellosis, or that eating

⁶⁷I have utilised participatory approaches and facilitation methods in numerous training programmes/workshops conducted with overseas veterinarians and livestock technicians as part of my previous work in the International NGO sector

undercooked pork is a risk factor for cysticercosis? In terms of policy development however, communicating the risk factors to the public is of little value if cultural norms do not portray them as a risk; as such I felt triangulation of risk factors within the context of risk *perception* is necessary to promote beneficial disease control policies.

Box 2: Focus Group Discussion Checklist

FOCUS GROUP DISCUSSION CHECKLIST

- Current understanding of zoonotic diseases (symptoms, treatment, control, risk factors/perception, willingness to pay for control)
- Sources of information on animal and human diseases
- Motivations to utilise preventative vis-a-vis curative therapy in animals
- Availability, Acceptability, Affordability, Accessibility and Quality of both animal and human health services in the area
- Evidence of co-operation between human and veterinary services
- If none, would this be something that makes sense?
- Aspects of cattle movement, trade and market practices
- Knowledge of current government policies and programmes

The international response to HPAI is a good example of how risk factors, such as poor hand washing and kitchen hygiene, could easily be communicated, and in many instances improved, within affected communities. However it was noted that “no systematic studies to our knowledge, have really delved into the understandings of

people's risk perceptions and how cultural practices might affect their responses" (Scoones 2010:33). Examples were given of how cultural practices such as the drinking of duck's blood was "looked upon by some with horror", rather than attempted to be understood in its cultural context (Scoones 2010:33). It appears that particularly in developing countries, project objectives surrounding communication and advocacy strategies for "risk factors" often overlook the notion of risk perception. In many cases there is an inherent assumption that once the risk is understood, people will stop engaging in "risky" behaviour, as this excerpt illustrates; "the people were seen as backward and in need of modernisation, and their fatalism about death and disease something that could be overcome through education and propaganda" (Scoones 2010:33).

In conclusion, I wanted to utilise the focus group discussions to obtain more detailed knowledge about how people perceive and respond to the threat of disease. Through understanding the communities' Knowledge, Attitudes and Practices with respect to zoonoses, I felt it would contribute to the body of evidence for how One Health could work in practice, given the current challenges with health and veterinary systems, local knowledge and culture, and isolation in sub-Saharan Africa. For the remainder of the thesis, direct quotations from focus group and interview participants are depicted in italics, as opposed to quotations from tertiary data sources.

2.5.3.2 Uganda Local Perspective: Conduction of Focus Group Discussions

The fieldwork for the Ugandan Case Study was undertaken in selected villages in the Soroti and Serere districts of eastern Uganda. Access to these villages was gained

through a series of field visits in 2010 and 2011, as part of my involvement with the Stamp Out Sleeping Sickness (SOS) campaign (see chapter five). Soroti and Serere are the two districts which received targeted interventions against Human African Trypanosomiasis (HAT) in phase two of the Stamp Out Sleeping Sickness programme. Both visits occurred in the dry season; the first being in July-August in 2010, at the time of baseline sample bleeding, with the second visit in June 2011, around seven months after the restricted application spray and trypanocide intervention had taken place in November 2010⁶⁹. This gave a unique opportunity to discuss with local communities both pre and post-intervention, and ascertain their response in terms of HAT risk perception, particularly with their understanding of the role of cattle. The villages were randomly chosen as a subset of the original sample frame used to obtain the August 2010 serological baseline for Stamp Out Sleeping Sickness Phase Two. Participants were randomly invited to attend the focus groups; and verbal consent was obtained prior to the start of every discussion. The sessions were done in the local language of Ateso, however in one area we had a second translator as the language was a version of Luo which my translator did not speak. Participants were given no incentives to participate, however a token sum was paid to individuals in some cases who helped with the translation in areas where my facilitator was not proficient in the dialect. Some individuals within the groups also spoke English. There was no homogeneity of participants in terms of gender and age as for the Nigerian case study, partly because social norms in this area did not dictate it, and also because the social unit I was interested was cattle keepers who lived in an HAT endemic area with experience of the SOS programme, regardless of

⁶⁹ For a more detailed overview of the Stamp Out Sleeping Sickness project see Chapter Four of this thesis, and also www.stampoutsleepingsickness.org

age or gender. Discussions lasted on average around two hours, and, pending participants' permission, were voice recorded in addition to taking handwritten notes. Transcriptions of the taped recordings were done at the end of every day. I did not take names of participants in the Ugandan case as I felt this to be too invasive given my limited time spent with the groups, however if certain individuals, particularly those with status such as the Local Councillor (LC1), introduced themselves I made a note of it.

Table 4: Focus Group Discussions Soroti and Serere Districts

Village	Parish	Subcounty	District	Participant Number (n)
Mugarama B	Aarapoo	Pingire	Serere	9
Tuburu	Achuna	Tubur	Soroti	11
Omoce	Aparisa	Tubur	Soroti	16
Gweri	Awaliwal	Gweri	Soroti	12
Agirigiroi B	Dakabela	Arapai	Soroti	13
Awoja	Dokolo	Gwere	Soroti	15
Akwangalet	Kagwara	Kadungulu	Serere	10
Owole	Kamuda	Bugondo	Serere	8
Okolonga	Kidetok	Pigire	Serere	7
Umulotok	Kidetok	Pigire	Serere	8
Lale	Lale	Kamuda	Soroti	9
Chele	Lale	Kamuda	Soroti	6
Obure	Obule	Asuret	Soroti	6
Idupa	Oburin	Olio	Serere	7
Anyalai	Olwelai	Katine	Soroti	15
Adoku	Osuguru	Olio	Serere	10
(Kaduka)				
Total				162

Discussions with local participants focussed upon the general checklisted questions as set out in Box 2 (page 70) however in many cases there was an added emphasis on the community response to the Stamp Out Sleeping Sickness intervention. This was done to ascertain whether this high profile zoonotic disease intervention resulted in increased understanding and perception of disease risk amongst the communities, and if not, why not.

2.5.3.3 Nigeria Local Perspective: Conduction of Focus Group Discussions

Over the three week period on Kachia Grazing Reserve in March 2011, a total of thirteen focus group discussions (n=95) were conducted in Hausa and Fulfulde, translated into English through an interpreter. Although individual participants for each focus group were chosen at random, the groups themselves were homogenous according to age and gender. This was in part due to the very gender-specific research focus of my counterpart, but also because of the strict social make-up of Fulani society. Having heterogeneous groups of participants, particularly in terms of gender, would at best exclude women from participating in conversation where men were present, and at worst, generate a cultural faux pas by bringing unrelated or unmarried members of male and female communities together in a public space, potentially resulting in severe problems within the community. Verbal consent was obtained prior to the start of every discussion, with participant names and ages recorded. Discussions lasted around ninety minutes on average, and, pending participants' permission, were voice recorded in addition to taking handwritten notes. Transcriptions of the taped recordings were done together with the translator at the end of every day, which also gave us a chance to discuss findings and make

clarifications on the content, particularly where questions surrounding translation of a particular concept arose.

The schedule of focus groups was developed as follows:

- Males 10-24 years
- Males 25-64 years
- Males 65+ years
- Females 10-24 years
- Females 25-64 years
- Females 65+ years
- Heads of Blocks 1-6
- Co-operative Society Leaders (males)
- Co-operative Society Leaders (females)
- School teachers (both males and females in the same group)

Overall, the conduction of FGDs within the KGR was largely successful. Participants were given no incentive to take part in these, although the provision of biscuits and kola nuts was appreciated. Initially, progress was slow, and we detected quite a high level of suspicion from villagers as to why we were conducting these “discussions” without the village heads present. Particularly for the womens’ groups, we had to spend quite a lot of time explaining why we needed to speak to the women without the men present; a concept which was foreign to both the men and women. Early on in the research we encountered quite a large barrier; no-one was turning up to our focus group discussions despite the lengthy negotiations and agreements on their conduction which had occurred with the Heads of Blocks. Upon further investigation

we discovered one particularly powerful individual was telling the community not to speak to the “strangers”. It was not until the Imam later announced through the mosque that villagers were permitted to speak to us that people would arrive when discussions were held. It appears the challenges we faced interacting with the Fulani were not unique to our situation; references to “suspicion and reluctant co-operation”⁷⁰ appeared in subsequent ICONZ project documents describing the serological work carried out on livestock on the reserve, and accounts in the literature also refer widely to Fulani suspicion of “outsiders”⁷¹.

Table 5: Focus Group Discussions Kachia Grazing Reserve

Gender	Age	Block	Participant Number
Male	>65	1	6
Male	25-64	1	14
Male	25-64	5	10
Male	25-64	6	5
Male	10-24	4	7
Male – Co-op Leaders	N/A	N/A	7
Female	>65	1	5
Female	25-64	3	7
Female	10-24	2	9
Female	10-24	6	4
Female – Co-op Leaders	N/A	N/A	11
Mixed – Teachers	N/A	N/A	7
Heads of Blocks	N/A	2, 4, 5	3
Total participants			N = 95 (41F, 54M)

⁷⁰ ICONZ Nigeria Case Study fieldwork review document, March 2011

⁷¹ See for example Iro (2001)

Despite the challenges, there were successes with the Kachia focus group discussions; particularly the unique position we, as two female researchers, enjoyed being able to speak to the women unchaperoned. In this respect we were indebted to our Fulani translator, who despite being male and an “outsider”, appeared to earn a high level of respect in a short amount of time from the opinion leaders. I feel certain that without his negotiating skills and mobilisation techniques, we would not have gained permission to speak to the women without the men being present. The fact that we were able to hold women-only meetings meant that we could gain unique perspectives of the female social units, an aspect of Fulani society known to have received “little attention” to date in the literature (de Bruijn 1997)

2.6 Conclusion

The empirical data for this thesis was collected using a multiple embedded case study approach; two “national” case studies in Uganda and Nigeria, and an “international” case examining currently dominant policy narratives and the challenges of One Health governance. Combination qualitative methodologies were used at both the local and national levels to triangulate the various perceptions on policy development and implementation, with a particular focus on zoonotic diseases. It was felt that this approach acknowledges the “broad brush thinking across all levels of policy” required to address health issues in developing countries, particularly zoonoses given their intersectoral nature (Cattand *et al* 2010).

Data collection occurred keeping in mind the previously discussed requirement to understand the “underlying politics of policy processes”⁷²; that is, the influence of individuals, networks, and the wider political context on policy development. Through understanding these three elements, particularly where they intersect, I wanted to identify potential policy “spaces” that could elevate One Health into the mainstream of national –and potentially international - policy dialogue. Guided by Scoones (2010:13), questions posed to participants aimed at generating knowledge around the following issues:

- Who are the actors involved in policy development, and what are the major influences on their decisions?
- What “policy spaces” could potentially open up (or close down) within this policy environment?
- What are the potential impacts of current health and livestock policies on livelihoods?
- What are the motivations for communities to adhere to policies and enforce them within their local areas, especially those pertaining to zoonotic diseases?

Overall, It is proposed that the results from these case studies will promote a greater understanding of the factors which motivate farmers and associated stakeholders to partake in sustainable zoonoses control in a variety of African settings; in short, contribute to discussion surrounding national-level operationalisation of One Health. Additionally, by attaining primary information from a number of ministerial and other institutional stakeholders through key informant interviews, the case studies

⁷² Scoones (2010:13)

attempt to strengthen existing knowledge on the feasibility of intersectoral collaboration between relevant government departments, research institutes and the private sector, for the development of sustainable national zoonotic disease control programmes and policies in future.

CHAPTER THREE

GLOBAL HEALTH GOVERNANCE: WHERE DOES ONE HEALTH FIT?

One Health occupies a precarious position within the complex dynamics of Global Health Governance in the 21st Century

3.1 Introduction

A detailed look at Global Health Governance in the “Global Health Decade”⁷³ acknowledges the rising stake of non-traditional health actors⁷⁴ in a sphere that has been largely dominated to date by the WHO, national health ministries and a small number of state research institutes. Globalisation, emerging disease threats and international pressure resulting from the Millennium Development Goals are all proposed as reasons for the increased funding, visibility and subsequent explosion of global health issues onto the political scene in recent years. It is into this convoluted network of Global Health Actors (GHAs) that One Health has landed; this chapter therefore aims to explore One Health’s raison d’être in the various contexts and complexes surrounding Global Health Governance as we enter the second decade of the 21st century. Through examining the literature in conjunction with empirical evidence gained from my involvement with the One Health Global Network

⁷³ From Hotez and Fenwick (2009b)

⁷⁴ Examples from Clark *et al* (2010) include civil society and nongovernmental organizations, private firms, philanthropists, and G20 countries such as Brazil, China and India

(OHGN) working group⁷⁵, this chapter aims to investigate the first proposition of this thesis: that “*One Health occupies a precarious position within the complex dynamics of Global Health Governance in the 21st century*”.

This chapter begins with an historical account of International Health Diplomacy dating back from the 19th century, from which several comparisons to the 21st century situation can be drawn. Following this, the evolution of international health governance into the 20th century is discussed, focussing in particular on the World Health Organisation (WHO) which, since its inception in 1948, has had to majorly adapt to the changing patterns of global health governance during its sixty years of existence. Looking at the WHO’s history in light of its “global political legitimacy”⁷⁶ gives a good foundation with which to understand the various interconnections, alliances and priorities which have formed within and between the major health actors over time; a context within which One Health must now fit. The rise of Global Public Goods (GPGs) as a means to “solve” the world’s health problems is discussed, and, through examining the theory behind the GPG perspective, questions around the “broad consensus”⁷⁷ that One Health is a Global Public Good are raised.

Looking at some of the interactions occurring at the international level also helps frame the subsequent empirical chapters, particularly given the strong influence of international policy narratives on health programmes of developing countries, such as those discussed in the Ugandan and Nigerian case studies. Control of the wide scope of public health issues of potentially international concern, either emerging or

⁷⁵ As discussed in the Chapter 2

⁷⁶ Clark *et al* (2010)

⁷⁷ From Normandeau (2011)

endemic, are not necessarily priorities in developing countries with little access to trade and where international pressure to address the “big three” usually overwhelm health budgets and policy decision-making. By examining current global health governance discourse, this chapter aims to explore options to motivate and encourage developing countries to invest in alternative One Health approaches, and how international movements such as the development of the One Health Global Network may encourage or prevent participation.

3.1.1 What is Globalisation?

Globalisation is the process of increasing social, economic and political interdependence; recognising that events in one part of the world have an ever-growing effect on people and places in another (Fidler, 2001). Globalisation continues to evolve as people, goods, concepts, capital, ideas and values diffuse across national borders; such integration continues to have “critical implications for public health and global public health governance”, largely affecting the sustainability of health systems worldwide (Taylor 2002).

Similar for many sectors, the advent of globalisation is a double-edged sword for health, with the continuing cross-border flows of people, goods and services meaning that health determinants, status and outcomes cannot be assured by the actions of national governments alone. There is a recognised need for collective action⁷⁸, which goes beyond government sectors to include the private and third party sectors - such as the international development agencies - to better manage the health risks associated with globalisation. Some commentators argue that the effects of

⁷⁸ See later where “collective action” is discussed within the Global Public Goods theory

globalisation go so far as to undermine state control, leading to changes in traditional governance that force nation states to co-operate with each other and build partnerships with non-state actors to ensure the health of their own country (Ng and Ruger 2011). There is also widespread acknowledgement that human health determinants are increasingly influenced by factors outside the health sector such as trade, crime, communication technologies and environmental factors. Calls to “broaden the horizon of public health” are increasing in frequency, recognising that human health should be “further up” the policy agenda (McMichael and Beaglehole 2000).

3.1.2 Theoretical Framework: A Note about Governance

Anglo-American political theory uses the term *government* to refer to the “formal institutions of the state and their monopoly of legitimate coercive power” (Stoker 1998). Characterised by its ability to make and enforce decisions; government thus refers to the “formal processes at the state level which maintain civil order and facilitate collective action” (Stoker 1998). In contrast, the term *governance* reflects the “shifting patterns of styles of governing” which have largely emerged in recent decades (Stoker 1998). Dictionary definitions have traditionally alluded to governance as a *synonym* for government; however the growing amount of research into governance theory has broadened the definition as “referring to a new process of governing, a changed condition of ordered rule” (Rhodes 1996, quoted in Stoker 1998). Despite the comparable end-points, the major difference between government and governance is largely found within the means by which each is achieved;

“Governance is ultimately concerned with creating the conditions for ordered rule and collective action. The outputs of governance are not therefore

different from those of government. It is rather a matter of *difference in processes*” (Stoker 1998).

Box 3: Stoker’s “Five Propositions of Governance”

The “Five Propositions of Governance” (from Stoker 1998):

1. Refers to a series of institutions or actors drawn from - but also *beyond* - government
2. Identifies the blurring of boundaries and responsibilities for tackling social and economic issues
3. Identifies the power dependence between institutions involved in collective action
4. Autonomous, self-governing networks of actors
5. Recognises the capacity to “get things done” that does not rest on the power of government to command or use its authority

Some authors use the term governance to indicate governing styles by which the boundaries between the public and private sectors have become blurred, aiming to capture the “shift in thinking” which has developed in recent years, particularly in the international development sector. It is thought that governance is a more appropriate terminology to reflect the growing interdependence of the public, private and donor bodies in the policy arena of developing countries, particularly in the health sector (Ng and Ruger 2011). As will be evident in this thesis, the notions of “contracting-out” to the private sector and Public Private Partnerships (PPPs) are now part of the reality of decision-making in many countries. More recently, the “governance perspective” has been developed as an *organising framework* to help understand the changing processes of governing, leading to “fresh perspectives which may not have been identified through other frameworks” (Stoker 1998). Box 3

(page 84) shows five propositions of governance which have been developed to present these various aspects for consideration; it is within these propositions that aspects of One Health governance in the context of my involvement with the One Health Global Network (OHGN) can be explored.

3.2 The first 100 years of International Health Governance:

1851-1951

The effects of globalisation and the stake of non-state actors and sectors in health governance are not new; international regimes for public health diplomacy have been in place largely since the 19th century. Important lessons can be learnt from looking at the history of public health governance, which should be used to guide 21st century decisions (Fidler 2001). Although quarantine practices in Europe can be traced back to the 14th century (Bell *et al* 2010), *international* co-operation on the control of global risks to human health did not begin until the mid 19th century. It was around this time that the original shift from national to global governance occurred in response to the threat of public health risks including infectious diseases, opium, alcohol, transboundary pollution and occupational hazards.

The first International Sanitary Conference occurred in 1851, when European states gathered to discuss cholera, yellow fever and plague. At the time, the efficacy of national quarantine policies had become diluted due to the technological advances of railways and faster ships; cholera in particular has been likened to the 19th century version of an emerging infectious disease (Fidler 2001). The next 100 years saw a

rapid expansion of initiatives and actors in international health co-operation, particularly in the area of infectious disease. Merchants in the 19th and early 20th centuries involved in the movement of people and goods around the world were frustrated by national quarantine efforts; as such the private sector played a major role in exerting pressure on states to co-operate on laws and policies for the control of infectious disease. Similarly, nongovernmental organisations such as the Rockefeller Foundation and the International Union against Tuberculosis were instrumental in supporting and developing international treaties and laws.

Following the first International Sanitary Conference in 1851, a number of “global” public health initiatives were held whereby states adopted treaties, staged conferences and created several international health organisations with specific mandates to facilitate co-operation on infectious disease control (Table 6). Science took a lead role in informing policy and treaty development; for example the advances on germ theory initiated by Koch and Pasteur (Fidler 2001). By 1951 this movement had resulted in the creation of four international health organisations⁷⁹ and a single set of laws, the International Sanitary Regulations, which subsequently became the International Health Regulations (IHR) (Box 4). Looking at health governance throughout this 1851-1951 period demonstrates that today’s challenges in global health governance are not new; in fact the health picture over a century ago “exhibits the same paradox as has been identified by contemporary analysis of the globalisation of public health” (Fidler 2001). States, non-state actors and international health organisations need to therefore be realistic about what can be

⁷⁹ The Pan American Sanitary Bureau (1902), the Office International de l’Hygiène Publique (1907), the Health Organisation of the League of Nations (1923) and the World Health Organisation (1951)

accomplished through international law and other governance templates alone as a means for tackling global health issues.

Table 6: International Treaties for Infectious Diseases 1892–1951⁸⁰

Year	Treaty
1892	International Sanitary Convention
1893	International Sanitary Convention
1894	International Sanitary Convention
1897	International Sanitary Convention
1903	International Sanitary Convention
1905	Inter-American Sanitary Convention
1912	International Sanitary Convention
1924	Pan American Sanitary Code
1924	Agreement Respecting Facilities to be Given to Merchant Seaman for the Treatment of Venereal Disease
1926	International Sanitary Convention, modifying the 1912 International Sanitary Convention
1927	Additional Protocol to the Pan American Sanitary Convention
1928	Pan American Sanitary Convention for Aerial Navigation
1930	Convention Concerning Anti-Diphtheritic Serum
1930	Agreement Regarding Measures to be Taken Against Dengue
1933	International Sanitary Convention for Aerial Navigation
1934	International Convention for Mutual Protection Against Dengue Fever
1938	International Sanitary Convention, amending the 1926 International Sanitary Convention
1944	International Sanitary Convention, modifying the 1926 International Sanitary Convention
1944	International Sanitary Convention for Aerial Navigation, modifying the 1933 International Sanitary Convention for Aerial Navigation
1946	Protocols to Prolong the 1944 International Sanitary Conventions
1951	International Sanitary Regulations (precursor to the current International Health Regulations, IHR – see Box 3)

⁸⁰ From Fidler (2001)

Box 4: International Health Regulations

International Health Regulations of the WHO

“To prevent, protect against, control and provide a public health response to the international spread of disease in ways that are commensurate with and restricted to public health risks, and which avoid unnecessary interference with international traffic and trade.” (WHO)

Consolidation of the numerous sanitary conventions of the 19th and 20th centuries resulted in a single set of rules; officially named the International Health Regulations 1969. The IHR are updated to reflect major changes in the world health picture, for example smallpox eradication in 1981. The only *legally binding* set of international rules on infectious disease control for all 194 WHO member states, the current IHR was endorsed in 2007 to reflect 21st century threats such as emerging infectious diseases and other public health emergencies such as nuclear meltdowns.

3.3 International Health Governance from the 1950's: The Rise and Fall – and Rise Again – of the World Health Organisation

Since the inception of the World Health Organisation in 1948, the tension between socioeconomic and technical approaches to healthcare has “waxed and waned”, largely defined by shifting global politics, dominant international players, and commitment from key individuals (Brown *et al* 2006). The WHO has been a consistently significant actor in the shifting global context in recent decades, despite having its role as “unquestionable leader” in international health severely challenged towards the end of the 21st century, with some heralding it as an “organisation in crisis” at the time (Brown *et al* 2006). The literature documents fundamental events in the WHO's history including changing membership as a result of independence of

former colonial powers in the 1960's, changing financial leadership in the 1980's reflecting the rising influence of the World Bank and other actors, and finally the rising fear of “global health threats” and a greater securitisation narrative towards the end of the 20th century. An understanding of its changing role since its formation in 1948 is an interesting background to perceive the current global health contexts within which One Health finds itself today.

3.3.1 The 1940's and 1950's: Early years of the WHO

The idea of permanent institutions for world health can be traced back to 1902 with the Pan American Sanitary Bureau which eventually became the Pan American Health Organisation (PAHO) (Brown *et al* 2006). The Rockefeller foundation was also an influential non-state actor in world health in the early 20th century. In Europe, the 1907 creation of the Office International de l'Hygiène Publique was mandated with the exchange of epidemiological information and the overall administration of the international sanitary agreements as outlined in Table 6 (page 88). In 1923 the Health Organisation of the League of Nations established its Geneva offices, extending the work of the Office International de l'Hygiène Publique through the sponsorship of international disease commissions and epidemiological intelligence and technical reports. Despite claims of poor budgeting and opposition from the American establishments, the two European health actors were at the forefront of that “critical” post-WWII moment “when the future of international health would be defined” (Brown *et al* 2006). Official approval for the United Nations, with additional support for the formation of a specialised agency for health, occurred at an international conference in 1945. According to Dr. Szeming Sze, a member of the

Chinese delegation in attendance, the idea for a single world organisation for health came about “quite accidentally” over lunch between Sze and the other two medical doctors present (Sze 1988). An interim commission of “prominent individuals” held a series of meetings between 1945 and 1948, under pressure to establish the WHO “as quickly as possible” amidst fears that “time had been lost in the field of health” in the years post World War II (WHO 1946, cited in Litsios 1997). The formal establishment of the WHO constitution occurred on the 7th April 1948, headed by Brock Chisholm. The new WHO incorporated the Office International d’Hygiène Publique (OIHP), the League of Nations Health Organisation and the Health division of the UN Relief and Rehabilitation Administration (UNRRA), with PAHO allowed to remain autonomous under a “regionalisation scheme”, consisting of six regions⁸¹. In this way the United States, although committed to the UN charter, maintained its right to intervene independently in the Americas in the interest of “national security” (Brown *et al* 2006).

3.3.2 The 1960’s and 1970’s: Shifting World Power

The 1960’s and 1970’s saw a period of emphasis on socioeconomic reforms, largely attributed to independence of former colonial powers and the spread of various socialist movements, including the civil rights movement. Unlike the World Bank and other large agencies where nation votes are weighted according to financial contribution, all member states of the WHO shared an equal vote in the World Health Assembly (WHA). The increase in the number of WHO member-states at this time has been attributed to its broadening agenda; by the late 1960s, Latin American,

⁸¹ The Americas, Southeast Asia, Africa, Europe, Eastern Mediterranean and Western Pacific

Asian, and African states held over two thirds majority in the WHA (Walt 1993). Up until this point, the WHO's purely technical mandate had "spared it the political conflicts wracking the rest of the United Nations", however the new demands of health systems in developing nations⁸² ultimately drew the WHO into a "key role" in international health policy (Brown *et al* 2006, Godlee 1994). Training of primary level healthcare workers and a multidimensional approach became a focus; with the famous 1978 Alma-Ata declaration that primary healthcare would be the means to achieve "Health for All in the year 2000" (Brown *et al* 2006, Godlee 1994). As early as 1979 however, the Alma-ata declaration was being challenged by a number of key health actors, including the World Bank, the Rockefeller Foundation and UNICEF, who launched an alternative concept of "Selective Primary Healthcare" based around practical interventions that were easy to measure impact, such as childhood immunisation, breastfeeding and oral rehydration of children (Brown *et al* 2006).

3.3.3 The 1980's and 1990's: WHO in crisis

The 1990's saw a number of publications in prominent journals both questioning⁸³ and affirming⁸⁴ the role of the WHO, most likely reflecting the wider dialogue occurring at the time. Hiroshi Nakajima's appointment as the WHO director general in 1988 sparked fears that he "lacked leadership" to deal with conflicts including vested interests from WHO member-states, tobacco marketing and population

⁸² By 1966, over fifty percent of WHO's budgetary spending was allocated to technical assistance in developing countries

⁸³ See Godlee (1994), Walt (1993), Vaughan *et al* (1996), Silver (1998), Lee *et al* (1996)

⁸⁴ For example Yach and Bettcher's two part series in the American Journal of Public Health (1998)

control⁸⁵ (Godlee 1994). In 1991, extrabudgetary funding overtook WHO member state contributions for the first time (Table 7 below), resulting in the World Bank, UNDP and wealthy nations states “largely calling the shots” through a series of vertical programs. The resulting difficulties in co-ordination and donor pressures to suit their interests led to what Walt termed “a cycle of decline, with donors expressing their lack of faith in its central management by placing funds outside the management’s control” (Walt 1994). Further accusations the WHO was in danger of losing its leadership role in international health issues “just when the world is looking for health leadership” appears to be well founded (Godlee 1994).

Table 7: Shifting Trends in EBF up until the 1990’s

Year	WHO budget from Member States (US\$ million)	Extrabudgetary Funding (US\$ million)	Percentage of Member Contributions (%)
1950	6	0	N/A
1971	75	>25	25
1986-1987	543	437	44
1990-1991	654	770	54

3.3.4 The 1990’s and beyond: Reassertion of WHO as a leader in global health

Until the 1990’s, the term “global health” was not a common feature of international health discourse; used mostly in referral to the failed 1960’s global malaria eradication programme, and intermittently by the environmental movement and others on the “political left with various world agendas” (Brown *et al* 2006). By the

⁸⁵ In 1952 the WHO declined to undertake a population programme because of the religious and political implications. By the 1970’s amidst growing concern over rising human populations, the WHO amended this decision, offering technical advice on family planning “but only on request from member states” (Godlee 1994)

1990's however, discourse surrounding a "palpable disease threat" began to draw the attention of both major health actors and the general public⁸⁶; CDCs *Emerging Infectious Diseases* journal went into publication, and referral to diseases such as West Nile Virus, Ebola and bioterrorism could be found in mainstream media (Brown *et al* 2006).

Responding to accusations the WHO was "in danger of losing the initiative on international health issues", it began to promote itself as a "co-ordinator, strategic planner and leader of 'global health' initiatives" (Brown *et al* 2006, Godlee 1994). Former Norwegian prime minister Dr Gro Harlem Brundtland was appointed to guide the WHO through this new era. By all accounts, Brundtland wanted to reposition WHO as a key actor in global health, "gain(ing) a seat at the table where decisions were being made" (Kickbusch 2000). Brundtland's Commission on macroeconomics and health, chaired by Harvard economist Jeffrey Sachs, included influential leaders, former finance ministers and officials from the World Bank, World Trade Organisation and UNDP. Under Brundtland's leadership, the "Global Health Decade"⁸⁷ was born; stakeholders from the private and nongovernmental sectors were brought together with governments and other agencies in an attempt to strengthen WHO's financial position, leading to an explosion of public-private partnerships (later termed Global Health Initiatives or GHIs)⁸⁸. The Bill & Melinda Gates Foundation became one of the most prominent, and within a few years, over seventy partnerships had been created. Despite some criticisms, the WHO was once

⁸⁶ Particularly in northern America and Europe

⁸⁷ As coined by Hotez & Fenwick (2009b)

⁸⁸ For example Roll Back Malaria (1998), Global Alliance for Vaccines and Immunisation (GAVI) (1999) and Stop TB (2001)

again “a credible and highly visible contributor” to the world’s health issues, which has by all accounts largely continued into the 21st century (Brown *et al* 2006). The narrative of Emerging Infectious Disease threats has continued well into the 21st century, with high profile examples such as SARS and H5N1 largely contributing to continuation of the response which has helped propel One Health into the centre of global health policy dialogue. The appointment of Margaret Chan in 2006 as director general of the WHO has been attributed to the fact she was the only contender “who had been tested in global health crises; avian influenza in 1997 and SARS in 2003” (Jeffrey Koplan, former director of the CDC, quoted in Shuchman 2007).

3.4 The 21st Century: From International Health Governance to Global Health Governance

We have seen that until the 1990s, international health was largely governed by nation-states in conjunction with multi-lateral bodies such as the WHO. Health funding was mainly bilateral; funds were transferred from donors to recipient health ministries tasked with the responsibility of health service delivery. In addition, the WHO was responsible for the co-ordination of worldwide efforts such as smallpox eradication whilst also providing for disease surveillance and control through the International Health Regulations (IHR, Box 4). In this context, International Health Governance was moderately simple, with roles and responsibilities shared between a relatively small network of actors. However there have been claims that this form of governance overwhelmingly serviced the interests of western powers (Ng and Ruger 2011, Fidler 2001). Additionally, some feel that prior to the 1990’s, threats of

emerging and re-emerging infectious diseases were not as imminent (or well understood) and by all accounts, nation states felt confident to handle health emergencies within their own countries (Ng and Ruger 2011).

3.4.1 *The Securitisation of Health*

Securitisation is a term which effectively describes the politicisation of an issue that was previously non-political; a “model which explains the transition by which an issue such as influenza can be moved from the non-political sphere to the political sphere, and ultimately into the realm of security” (Collins 2007). Once an issue is perceived to be “negative” to a country or region’s well being, for example human deaths, high costs of control, or long term detriment to a population’s resources, it becomes of increased importance to utilise part of a nation’s resources to protect against the threat (Leboeuf and Broughton, 2008). Although issues of health securitisation seem to be appearing more frequently in the literature in recent years, particularly surrounding One Health in the context of Emerging Infectious Diseases, the notion of controlling disease in another country for the benefit of your own has been noted for many years. For example Italian professor Missiroli, speaking at the Third session of a joint WHO/FAO meeting on malaria in 1948, claimed “Africa cannot be fully exploited, because of the danger of flies and mosquitoes; if we can control them the prosperity of Europe will be enhanced” (Packard 1997). Similar views existed in the United States during the 1950’s and 1960’s; there was a strong belief that economic growth as a result of health improvements in developing countries would expand markets for US goods (Packard 1997). During the years of the cold war, malaria

control for under-developed nations was used as a political pawn for “wining hearts and minds” in the war against communism (Brown *et al* 2006).

Towards the end of the 20th century, particularly in the United States under Clinton, human health was conceptualised as “a limited resource to be defended” (Leboeuf and Broughton 2008). Bill Clinton famously stated that infectious diseases such as HIV posed “a threat to US national security because of its catastrophic social consequences, particularly in the developing world.” (CNN news report 2000, cited in Leboeuf and Broughton 2008). The high profile securitisation of HIV/AIDS has undoubtedly resulted in a huge amount of advocacy and resources to the cause; including the creation of a specific UN agency (UNAIDS), explicit reference in the Millennium Development Goals, and debate on the crisis all the way up to the UN Security Council⁸⁹. However, those working at the community level to “normalise social perceptions” of HIV/AIDS saw securitisation of the disease to be detrimental to HIV positive individuals, who “viewed through this narrow framework of security, could be wrongly identified as the risk rather than the referent object” (Elbe 2006, cited in Collins 2007). The same could be said for any high profile disease including SARS, HPAI and tuberculosis, highlighting the “fine line” between the health rights of the nation versus the health rights of its individual citizens in the era of globalisation. The ever-changing process of health governance has led to acknowledgment of the “heterogeneity” of the securitisation process;

“researchers and policy makers have been unable to reach consensus on what constitutes environmental, human and national security, as what, if any, relationships exist between these variables” (McCab and Bailey 2007, cited in Leboeuf and Broughton, 2008).

⁸⁹ For example the UNSC meeting in 2000 on the “state of HIV/AIDS in sub-Saharan Africa” and the adoption of resolution 1308, as discussed in Leboeuf & Broughton (2008)

3.4.2 SARS 2003: The “Nail in the Coffin”⁹⁰ on Traditional Health Governance

Sudden Acute Respiratory Syndrome, the “first severe infectious disease to emerge in the globalised society of the 21st century”⁹¹, has been attributed to permanently changing the way in which global health is governed. One author attributed it to the “coming-of-age of a governance strategy for infectious diseases more radical than any previous governance innovation in this area of international relations” (Fidler 2004). Although SARS had features similar to diseases which could be governed by traditional International Health Governance such as cross border mobility, the mechanisms that were available at the time for its control were irrelevant: SARS was a new disease, therefore was not subject to the IHR.

The international response to SARS paved the way for a permanent “change in attitude” of traditional gate-keepers of disease control, such as the UN agencies and national governments. SARS demonstrated how epidemiological information in a globalised world does not respect sovereignty. When the Chinese government showed reluctance to openly report on the magnitude of the problem in China⁹², the WHO had to rely on non-traditional sources to gain epidemiological information such as media reports, the internet and individual medical reports. Furthermore, previous restrictions on agencies to “dictate” outbreak control measures in the name of sovereignty were overruled. The “economically damaging” issuance of global

⁹⁰ From Fidler (2004)

⁹¹ From Fidler (2003)

⁹² As an emerging disease, SARS was not on the IHR list and as such there were no legal ties to ensure that countries reported on outbreaks

alerts and radical travel warnings⁹³ revealed an unprecedented power of the WHO over nation states at the time (Fidler 2004). The governance response to SARS also reinvigorated policy dialogue surrounding human rights in the event of public health emergencies, to some extent reigniting 1980's HIV/AIDS dialogue regarding civil rights. Several authors have noted the ethical issues which arose during management of the SARS outbreak; for example the balance of professional duty with fears for personal safety, economic losses against containment of disease and other balancing acts required to ensure public health whilst protecting human rights (Fidler 2004, Singer *et al* 2003).

3.5 Major Global Health Actors (GHAs) and Networks in the 21st Century

Lack of structure has been described as a “conspicuous feature” of global health governance within the 21st century; the realisation that infectious disease could now affect people regardless of their geographic location gave “new urgency to addressing health on a global scale” (Ng and Ruger 2011). The result was a complex, relatively un-coordinated health governance structure, with a multitude of actors and activities exerting varying levels of influence. In keeping with the previous governance perspective theory outlined in section 3.1 of this chapter, it has also been acknowledged that although new actors bring new methods of resource access and ideas, the lines of responsibility can very easily become blurred (Kickbusch 2000). This was prominently demonstrated in the previous section, where the voice of the WHO was seen to be diminished during the 1980's and early 1990's as a result of

⁹³ Both of which were not endorsed by either the IHR or WHO's constitution at the time of issuance

increasing challenges from external actors such as philanthropic organisations and the World Bank.

Today in the global health sector alone, there is estimated to be over 40 bilateral donors, 26 UN agencies, 20 global and regional funds and 90 global health initiatives (Sridhar 2010). Despite calls that there is “no architecture to global health”, a review of recent literature could imply a vaguely defined structure, captured in Figure 2 (Ng and Ruger 2011). Despite the assumption that non-traditional actors are currently the defining feature of the “organisational chaos” that is global health governance, it appears WHO is still relatively central to the process.



Figure 2: Perspectives of Global Health Governance (Ng & Ruger 2011)

3.5.1 Nation States

Literature confirms the ongoing responsibility of nation states in global health governance, with bilateral funding still constituting the majority of international

health assistance, and national resources funding the bulk of global health spending (Ng and Ruger 2011). Disease surveillance and control still largely depends on the capacity and co-operation of nation-states as the implementers of international decisions⁹⁴. Furthermore, individual nations, particularly the rich and powerful, can affect health outcomes through trade agreements and agenda-setting within the WHO. The “walking out” of the UN system by the USSR in 1949 is a key example; it allowed the United States to exert a “dominant influence”⁹⁵ on international health governance at the time. However, upon her return in the 1960’s, the Soviet Union “wanted to make its mark on international health”, leading to the launch of the Global Smallpox Eradication Program (Brown *et al* 2006). The influence of nation states was also pertinently seen throughout the 1990’s, with extrabudgetary contributions from powerful nations affecting WHO’s technical authority (Table 7).

3.5.2 United Nations Organisations (UNOs)

Broad-based UN development agencies such as UNDP and UNICEF have increasingly been accused of “taking the initiative” on health, challenging WHO’s status in international health governance. Growing tensions between health and development actors in response to the HIV/AIDS epidemic, famine in the Horn of Africa, the Rwandan genocide and rising concerns surrounding environmental degradation in the 1990’s lead to calls for “strategic thinking into the next decade”, and suggestions that the WHO’s “heyday” was over (Walt 1993, Godlee 1994). A

⁹⁴ Pertinently seen in China’s attempted suppression of media reports surrounding the SARS outbreak in 2003

⁹⁵ The appointment of Brazilian Marcolino Candau as WHO director general in 1953 was seen by some to as an effort to remain “closely allied” with US interests throughout his twenty year term. Candau had previously been heavily involved with PAHO and the Rockefeller Foundation (Brown *et al* 2006).

prime example is the launch of UNAIDS in 1993, effectively removing the WHO's largest budget from its control (Godlee 1994). Moreover, the 1990 Children's Vaccine Initiative proposed by UNICEF, UNDP, Rockefeller and several other actors was seen by the WHO as nothing less than an "attempted coup"⁹⁶.

Recent publications⁹⁷ have acknowledged the diminishing influence of the WHO and other UN agencies in light of the growth of major Global Health Initiatives incorporating public private partnerships and philanthropic foundations. The UN has been accused of "lacking a master plan" for health, with duplication and competition "rife" amongst its agencies (Lee *et al* 1996). The WHO in particular has a history of vulnerability to political pressures, with little power to enforce decisions or direction of nation states, as discussed in the previous section. Critics further accuse UN mandates to be over-focused on technical matters and vertical programmes, as well as performing conflicting roles as advocate, advisor and evaluator of health interventions worldwide (Ng and Ruger 2011). Despite these short-comings, and in the absence of any real alternative, the WHO is today still considered the authoritative voice on global health governance, with some deeming its perceived neutrality on health issues as the only actor to combine "institutional mandate, legal authority and public health expertise" (Ng and Ruger 2011).

3.5.3 The World Trade Organisation, World Bank, G8, G20

The World Bank has been described by some as having a "more influential power than the WHO" since the 1990's in setting the global health agenda, with its

⁹⁶ Muraskin (1998) cited in Brown *et al* (2006)

⁹⁷ See for example Ng and Ruger (2011), Sridhar (2009), Walt (1993)

increasing recognition of the linkages between human health and development (Ng and Ruger 2011). Formed in 1946, the World Bank's initial mandate was to finance the post-WWII reconstruction of Europe; from this evolving into its present-day role as a provider of loans and other financial assistance to developing countries. Whilst initially concentrating on physical infrastructure, by the 1970's the World Bank had become increasingly involved with issues of health and education. The forging ahead with structural adjustment programmes at the height of the HIV/AIDS epidemic "drew angry criticism, but also underscored the Bank's new influence" (Brown *et al* 2006). From the first loan for family planning in 1970 to the establishment of the Department of Population, Health and Nutrition in 1979, it has been argued that World Bank assistance to governments could help overcome the health problems of developing countries whilst at the same time promote economic growth (Brown *et al* 2006). The World Bank's ability to mobilise huge amounts of funds (often exceeding WHO's total annual budget) affords them a large stake in the global health agenda. This was emphasised in 1993, describing how the World Bank, not the WHO, was leading consortiums to co-ordinate national health policy in countries such as Bangladesh, highlighting how WHO "is not seen as an equal partner spearheading policy" (Walt 1993).

The World Trade Organisation (WTO), although not traditionally health related, is also becoming an increasingly important 21st century stakeholder in global health. Trade regimes controlled by the WTO can have a significant impact on access to medicines and other health system inputs, as well as influencing the distribution of non-communicable disease risks such as tobacco and food safety. Issues surrounding

the influence of nation states and trade on international health began to surface as early as the 1970's, when the WHO was facing pressure from multinational companies and the United States surrounding breast milk substitutes for children in developing countries (Brown *et al* 2006). WHO's promotion of the Essential Drugs programme in 1977, opposed by major US-based pharmaceutical companies, resulted in the United States withholding its WHO contribution and paying only 20% of its contribution to UN agencies across the board (Brown *et al* 2006, Godlee 1994).

The G8 has been flagged as a potential 21st century leader in global health, citing examples such as the Global Fund emerging out of this informal and therefore relatively flexible network (Ng and Ruger 2011). Concerns have nevertheless been raised as to the extent in which the G8 can make objective decisions about global health, given its access to significant human and financial resources. For example, lack of action regarding the tobacco industry has led to fear that the G8 could prioritise its own concerns over that of health, or conversely, some feel the G8 has been forced to act given their status; a phenomenon described as the "great global guilt trip" (Garrett and Alavian 2010).

Alternatively, the G20, of which most member states are developing or recently emerging economies such as Brazil, China, Indonesia and Egypt, have been suggested as potentially powerful stakeholders in future health governance. Some argue the G20 could in fact be a *better* platform for health leadership as they are "not vulnerable to such pleas to share their wealth" (Garrett and Alavian 2010). Whereas the G8 has traditionally used health within a security or development narrative, the G20 appears to be using health to pursue some quite different policy issues, for

example Indonesia's recent challenge to the WHO's long-standing influenza virus sharing agreements (Fidler 2008). Despite this, there is hope the G20 countries will provide a "voice" to the concerns of the developing world in the global health agenda, particularly against trade and intellectual property rules that for example hinder access to medicines. With growing economic concerns of several G8 countries, the future role of the G20 within global health power will be watched with interest.

3.5.4 Non-government organisations (NGOs) and Civil Society Organisations (CSOs)

WHO's "Primary Health Care" approach in the 1970's was touted as the beginnings of a more "grass roots" approach taken by the organisation towards health, particularly in Africa. This shift in direction drew significant consultation from nongovernmental organisations and medical missionaries, who at the time held the greatest experience in developing countries. The stake of NGOs in the international health agenda gradually grew throughout the 1970's; lobbying of delegates at the World Health Assemblies during the 1980's resulted in further pressure on WHO and its member states (Walt 1993). Non Government Organisations and Civil Society Organisations (CSOs) are considered by some to have the greatest potential to override national state efforts in health service delivery in many low-income countries (Ng and Ruger 2011). Their flexibility, access to communities and claims they give a "voice to the poor" allow NGOs and CSOs to raise pertinent health issues which may lie outside existing government agendas. However, competition for donor funds, territorialisation, and underlying mandates such as religion can all affect

the design and delivery of health programmes to beneficiaries. They are also not exempt from donor pressure (even if that donor is “joe public”) and as such can never be completely independent from outside interests. Moreover, questions surrounding NGO accountability and recruitment processes are continuously raised, with accusations that the highly inflated salaries and benefits paid to NGO staff in developing countries result in “brain drain” from national administrations (Ng and Ruger 2011, personal observation). Moreover, it appears the independence maintained by many NGOs from national government systems can mean they become dismissive of wider national planning processes and macroeconomic policies (personal observations).

3.5.5 The Private Sector, Public-Private Partnerships (PPPs) and Philanthropic Foundations

The explosion of private sector and philanthropic authority into the arena of global health into the 21st century has been highly visible. Some have attributed this to the “longer standing trend towards the private” as a result of World Bank structural adjustment programmes, whilst others credit it to the new direction taken by WHO under Dr. Gro Harlem Brundtland (Williams and Rushton 2011). Historically, philanthropy and health have always held close interconnections; for example the Rockefeller Foundation played a lead role in attempts at global malaria eradication in the 1960’s (Brown *et al* 2006). More recently, Global Health Initiatives (GHIs) such as Stop TB, Roll Back Malaria, the Global Fund and GAVI Alliance⁹⁸ have all been formed as Public Private Partnerships and are now considered central – and thus

⁹⁸Formerly the Global Alliance for Vaccines and Immunisation

difficult to dismantle - to health interventions in their particular area of focus. International support for these partnerships is growing; economist Jeffrey Sachs described the Global Fund as “arguably the most successful innovation in foreign assistance of the past decade” (Sachs 2010 cited in Williams and Rushton 2011). Additionally, the weight of private philanthropic foundations, of which the Bill & Melinda Gates Foundation is probably the most influential at present, is unprecedented:

“When Bill speaks, they listen. And as long as the Gates Foundation has the ability to deploy such huge resources, these organisations will continue to listen” (Williams and Rushton 2011).

Despite the positives, reports of “unease and some tension” at the decreasing financial importance of traditional health actors are beginning to surface⁹⁹. There are also reservations about the long term sustainability of public private partnerships. Private sector actors, particularly the smaller or less publicised, could be tempted to use development projects as a public relations manoeuvre, promoting short term corporate social responsibility strategies to the detriment of any long term investment into actual change. Others, claim “the private sector reaps the benefits whilst the public sector carries the risk”, thus jeopardising long term, sustainable approaches to improvement of health systems in developing countries (Ng and Rugen 2011, Ollila 2005). Additionally, as the “public” funding in the majority of PPPs come from external donors rather than the public sector of nation states, there are quite strong criticisms emerging that global health initiatives are “ignoring a wider problem” of the state of health *systems* in many countries. Relied upon for the delivery of large

⁹⁹ According to Clark *et al* (2010), spending on global health by the Bill & Melinda Gates Foundation in 2007 was almost equal to WHO’s annual budget for the same year

scale interventions against malaria and HIV/AIDS for example, the health systems in most developing countries are “fragile and unable to provide effective health services” (Marchal *et al* 2009). Despite claims that GHIs support health systems¹⁰⁰, most have been found instead to “support disease-specific activities essential for implementation of their own programmes” (Marchal *et al* 2009). The reality is that GHI funding overwhelms national institutes; for example Uganda’s entire Ministry of Health budget of \$112 million USD was swamped by the \$167 million USD HIV/AIDS funding from PEPFAR, the World Bank and the Global Fund in 2005 (Marchal *et al* 2009). In this way, huge disease-specific cash injections into fragile systems may not be the most efficient way to tackle the world’s health problems, and at worst encourage complacency and corruption (personal observation).

Within the group of purely private sector actors, various accounts exist of attempts to undermine the health of the poor in developing countries altogether; the multinational pharmaceutical and food industries being two prime examples. As described previously in this chapter, the 1970’s was a period of intense pressure for the WHO, “being aggressively lobbied by industry on the one hand, and industry groups on the other” (Godlee 1994). Two such instances of pressure from the private sector, which translated into withdrawal of WHO funding from the United States, were the “babyfood story” in the mid 1970’s, and the WHO Action Programme on Essential Drugs in 1978 (Walt 1993). By the end of the 1970’s, a large network of activists was campaigning for WHO and UNICEF to act on growing

¹⁰⁰ The Global Fund proposes a “diagonal approach” to health system strengthening, PEPFAR mentions “health systems” however bypasses national institutions in its approach, whilst Roll Back Malaria “proposes to deliver malaria interventions through integrated health systems” (Marchal *et al* 2009)

concerns about the dangers of feeding infant milk formulas to children in developing countries. The public pressure resulted in the 1981 passing of an International Code on breast milk substitutes by 118 votes to 1; the sole opposing vote being from the United States, objecting to the “interference in global trade” (Walt 1993). Nestle, with a large stake in America at the time, controlled a third of the world’s infant formula market, amounting to around \$3.3 billion in the early 1980’s (Godlee1994).

Around the same time, the WHO’s Essential Drugs Programme aimed to assist countries to improve drug policies around short lists of “essential” medicines, which countries would be encouraged to manufacture locally. The pharmaceutical industry was a vocal opponent of the initiative; in 1985 when the United States withheld their UN contributions in protest, 11 out of the world’s 18 largest multinational drug companies were American, with annual turnovers in excess of \$14 billion (Godlee 1994, Walt 1993). The Access to Medicines debate is still current, however it seems that greater efforts are being made to acknowledge and strengthen international public-private partnerships to improve the situation in developing countries¹⁰¹. The changing governance climate in the 21st century, coupled perhaps with the increased capacity of countries such as Brazil, China and India to develop and market drugs, thus appear to be diluting to some extent the influence of “Big Pharma”.

3.5.6 The Consultative Group on International Agricultural Research (CGIAR)

¹⁰¹ For example the WHO-WTO-WIPO symposium held in July 2010 to discuss the “range of issues affecting how poorer populations can obtain the medicines they need” see http://www.wto.org/english/news_e/news10_e/trip_16jul10_e.htm for full report. Additionally, Neglected Tropical Disease Programmes are benefiting from donations of drugs by major pharmaceutical companies (Molyneux and Malecela 2011).

The Consultative Group on International Agricultural Research is a 15 member global partnership which carries out “sustainable development research” with partner organisations including research institutes, academia, nongovernmental organisations and the private sector across a wide number of countries (CGIAR 2012). With roots in the Rockefeller and Ford Foundations dating back to the 1950’s, the original research mandate of the CGIAR was to improve cultivars of staple food sources such as rice, maize and wheat, in response to growing concerns throughout the 1960’s and 1970’s of “a widespread, devastating famine” (CGIAR 2012). Since this time, there has been an ever-widening research portfolio to address issues of smallholder agricultural systems and environmental determinants of productivity such as soil, water and forests; ultimately to “ensure the conservation of the natural resources upon which sustainable and equitable rural development depends” (CGIAR 2012). Criticisms of the CGIAR’s lack of accountability and strategic co-ordination go back to the 1980’s, resulting in claims of a “more business-like” operational model emerging in recent years (CGIAR 2012). Additionally, rising prices of food staples and fuel in the first decade of the 21st century prompted calls to “step up to the challenges of the 21st Century and better harness the power of agricultural research for poverty alleviation, economic growth and environmental sustainability” (Sierra 2009). However, some have argued that changing markets, human migration patterns and technologies as a result of globalisation have “substantially transformed the joint dynamics of agriculture and poverty in developing countries, making some key assumptions that justified the creation of the CGIAR no longer valid” (Ekboir 2009).

In conclusion, a number of historical and political events in recent decades including globalisation, securitisation and the increasing influence of non-traditional health actors has contributed to the ever-changing health governance context within which global health actors now find themselves. The jury is still out on whether the growing influence of particularly the private and philanthropic actors in the first decade of the 21st century is really the best approach; concerns about the investment of huge amounts of money into vertical disease approaches such as HIV/AIDS is well founded in the literature¹⁰². Opponents argue that the tendency for Global Health Initiatives to concentrate resources on single disease interventions such as HPAI, HIV/AIDs and malaria can result in the creation of parallel systems outside of existing health structures, decreasing the human and technical capacity of national institutions, particularly in resource-stretched health ministries of developing countries (Cavalli *et al* 2010). Other concerns of health securitisation echo wider unease felt by some that transition of health issues outside the technical sphere, for example to the military or private sector, may in fact “remove agency” from health specialists (Katz and Singer, cited in Collins 2007).

Many authors feel that global health governance “still lags behind the ability of human society to create and spread disease”; with 21st century issues such as genetic engineering, emerging infectious diseases and access to medicines continuing to “complicate matters” (Fidler 2001). Innovative solutions towards health governance will need to be found in order to overcome the challenges of co-ordination of such a wide variety of actors with varying agendas. There is a requirement to balance the

¹⁰² For example Leboeuf and Broughton (2008), England (2007), Molyneux (2008) and Maudlin *et al* (2009) amongst others

needs of individuals with that of populations, of donors with their beneficiaries, and agenda setting from powerful Global Health Initiatives with that of more traditional, technical institutes such as the WHO and national health ministries. It is within this complex maze of interactions that One Health could potentially play a role of “over seer”. Through exerting an objective influence over alliances between divergent sets of global health actors, One Health could help ensure the underlying philosophies of an holistic approach to health, including collaboration and multi-disciplinarity, remains prominent. In essence, global health governance of today needs to address the “tightly linked questions about the roles various organizations should play, the rules by which they play, and who sets those rules” (Clark *et al* 2010). The next section therefore discusses one proposed effort to achieve this, the One Health Global Network.

3.6 One Health Governance and Development of the One Health Global Network (OHGN)

3.6.1 Introduction

The acceleration of institutional and individual effort to promote One Health has led to a rebound concern that obtaining a current understanding of “what is going on with One Health has become mission impossible” (quote by Alain Vandersmissen, cited in Normandeau 2011). Whilst conceding that One Health is not “owned” by any single organisation or institution, a requirement for some form of co-ordination body to keep all the “puzzle pieces” of One Health together, and thus current and relevant, has been acknowledged (Normandeau 2011). As a result, the concept of a

One Health Global Network (OHGN) came out of the 2010 Stone Mountain meeting (see Appendix) as one of six working groups designed to move the international One Health agenda forwards in the next five years. The One Health Global Network Working Group was given two specific objectives, outlined in Box 5 below.

Box 5: Objectives of the One Health Global Network

The One Health Global Network (OHGN) aims to:

(i) Advocate and garner international support for One Health by serving as a vehicle for global collaboration on OH programmes and projects

(ii) Promote One Health and enable connectivity through a centralised area where OH success stories are gathered and available to a wide-ranging audience

(Stone Mountain Report 2010)

At the time of inception, it was anticipated that the OHGN would be a “virtual umbrella”, consisting of a multidisciplinary body of professionals from across the globe (Stone Mountain 2010). A permanently active “virtual coordination team”, representing all One Health sectors, was proposed as the model for an initial advisory board to moderate the virtual network. In an effort to maintain credibility of information passing through the network, it was anticipated that members of this team would represent their individual institutions rather than act in a personal capacity. The criteria for selection were varied, ranging from One Health experience, networking and coordination skills and willingness to participate.

3.6.2 Outcome of a OHGN Synthesis Questionnaire, August 2011

As a first step towards development of the OHGN, test phase questionnaires were sent out by the OHGN working group co-leaders to 29 “key One Health respondents” in June 2011, in order to gain their insights and ideas for what this “network of networks” may look like. With a response rate of 38 percent (11 replies), I was tasked with developing a synthesis report summarising respondents’ key feelings and ideas surrounding the proposition.

All respondents were familiar with the One Health approach; however their understanding of it varied quite markedly; usually in accordance to their professional background or their representative institution. Whilst everyone agreed that One Health involved “to some extent” the integration of disciplines across human and animal health; answers were largely biased towards epidemic and zoonotic diseases, with little reference to the wildlife/ecosystem aspects and the endemic or non-communicable diseases. Only one respondent mentioned the economic benefits of interdisciplinary collaboration; “(One Health) is any added value in terms of health gains in all species, or economic savings from closer cooperation....if we cannot show such an added value in any way it is not really ‘One Health’”.

Two respondents mentioned the need for One Health to be “*sustainable and locally relevant*”, thus broadening the definition from the “outbreak narrative”¹⁰³. The majority of respondents indicated interest in participation of the network so long as it remained an “informal” platform that could help fulfil the “*huge, unfinished agenda*” of interdisciplinary collaboration, including the promotion of:

¹⁰³ As outlined in Scoones (2010:20)

- Mutual learning and capacity building across sectors
- Ecological and socioeconomic aspects of global health
- Information and experience sharing
- Advocacy and “best practice” for policy makers
- Encouragement of interdisciplinary research
- Institutional and inter-regional networking and policy integration
- Development of “*new global standards*” for ecosystem health

Respondents overwhelmingly felt that institutionalisation of One Health was not required, that is creation of the network should “*not lead to a new silo or a new discipline*”; others were concerned that individual membership may entail funding contributions from their member institution. A valuable concluding remark was made by one respondent, indicating a major weakness with the One Health approach to date;

“One Health is mainly supported and known by animal health specialists...a strong outreach effort towards human health, wildlife and environment specialists, development specialists and economists should be supported by the network, and all of its members who all have connections in other fields than animal health”.

Overall, the achievement of this would go a long way to promotion of the approach, and justification for the OHGN’s development.

I was asked to provide my overall comments on answer trends, of which the edited version is inserted below. Having been further involved with the evolution of the OHGN to date, I feel these comments still stand, particularly in terms of the lack of participation from some disciplines and regions:

“In general, I felt responses were largely compatible in their understanding of One Health, and the role a “One Health Global Network” (OHGN) could play in the future. Generally, participants are enthusiastic about using the OHGN as a global governance platform; however some indicated concerns regarding membership/funding expectations and the possibility of “re-inventing the wheel”; concerns which need further discussion and “teasing out” in time as the network proceeds.

The vast range of participant backgrounds was realised with a well-rounded, extensive list of publications and further contacts, emulating the human-animal-ecosystem interface for which the One Health approach is known. However, I feel that responses were under-represented by the ecosystem/wildlife consortium, and that further efforts to engage with this sector should be initiated. Having said this, there are some strong sectoral contacts in this initial list, which should enable snowballing to occur for maximum representation in future. One concern in the current synthesis is the lack of representation from developing countries, especially Africa and Latin America. If the OHGN is to be truly “global”, perhaps participants from developing countries could/should be encouraged to have more interaction with the dialogue at this stage”

3.6.3 Co-ordinating Governance of One Health

The first Expert Meeting on One Health Governance and Global Network was held in November 2011 in Atlanta, USA, consisting of 20 “experts” from mainly Europe and the United States. The initial objective of this meeting was to develop a proposal for the One Health “network of networks” (OHGN), at the same time recognising it is not necessary for any one organisation to “own” or “lead” it. In particular, participants noted that “if governance is right, the One Health will become part of our daily lives, it will be relevant, real and there will be a sense of direction” (Normandeau 2011). However, further discussions through the course of the meeting revealed that many were not comfortable with the word “governance” and felt that formation of a “One Health Guidance Group” (depicted as “governance with a small g”) would be more appropriate; “aiming to foster and champion the goals of One Health, and to act as a facilitator and enabler” (Normandeau 2011).

The following key objectives for the OHGN were identified¹⁰⁴:

i) *Immediate Objectives*

- Ensure coherence of actions, communication and advocacy strategies
- Unite One Health actors
- Promote One Health education

ii) *Long term Objectives*

- Improve Global Health Security
- One Health “becomes part of our daily life”
- Sustainable development

Regardless of the terminology used, there are still a number of issues concerning OHGN governance that require addressing. The original intention for the OHGN “virtual co-ordinators” to act in their institutional capacity, and therefore bring credibility to the governance network, appears to have been lost. This may pose a problem for the guidance group to ensure objective facilitation. Despite not wanting to appear as though the network is “owned” by any one individual or organisation, many participants felt that its endorsement by the major global health actors¹⁰⁵ would promote the network’s credibility, and thus ensure the sustainability outlined in the long term objectives. Particularly in the area of policy; it is unlikely the network will

¹⁰⁴ As outlined in Normandeau (2011)

¹⁰⁵ For example the OIE/FAO/WHO tripartite or a similar group of academic or non-government institutions

improve advocacy and communication if policy makers are expected to seek guidance from a “faceless” network. Stoker advocates that a strong governance body can actually overcome, rather than exacerbate, sensitivities surrounding ownership or leadership, thus strengthening member participation (Stoker 1998). Suggestion that the network be housed within a non-governmental or non-multilateral organisation, for example a think tank, is still under review; for now the portal remains anonymous to the general public¹⁰⁶.

It may be that re-visiting the concept of “big g” governance¹⁰⁷ is necessary to alleviate this dichotomy of ensuring the provision of One Health leadership without overt ownership. One justification for “housing” the OHGN within a credible institution(s) to ensure its integrity could be through Stoker’s acknowledgement that “although a single organisation cannot easily command, it may *dominate* a particular step of the governance process” (Stoker 1998). Pertinently, the long term survival of the OHGN may in fact depend on strong, visible governance; well governed networks not only influence policy, but allow actors and institutions to blend their resources and capacities into a long term partnership “that enables it to have a sustained role in governance decisions” (Stoker 1998). In this way, such partnerships become a sustainable decision-making authority within their relevant communities; an ultimate objective of the OHGN in terms of encouraging One Health approaches within the global community. Ultimately, the complexities surrounding One Health governance appear largely similar to the challenges surrounding any global health approach in the fast moving, multi-actor 21st century; I

¹⁰⁶ The University of Edinburgh has developed (and currently maintains) the portal although this is not divulged to network members

¹⁰⁷ As opposed to the “small g” governance referred to in the Atlanta report

feel a strong stance on governance must be taken if One Health is to overcome the scepticism and truly become “part of our daily lives”¹⁰⁸ as implied in the OHGN objectives.

3.7 Framing One Health Policy: A Global Public Good?

There currently exists a “wide consensus that *One Health is a global public good*, that is cannot be owned, and that it should remain flexible, based on a broad pool of multiple expertises that cross disciplines and countries” (Normandeau 2011). Whilst such a consensus acknowledges and attempts to include the wide variety of contexts and countries involved in any global approach, there is a need to look deeper into the emerging narrative of One Health as a Global Public Good before One Health is irrevocably packaged in this way. By asking “whose world, whose health?”¹⁰⁹, it is envisaged an analysis on Global Public Goods perspective will help contribute to the evidence within this thesis concerned with “alternative” One Health narratives as suggested by Scoones (2010).

3.7.1 The Definition of a Global Public Good

In basic economic terms, a public good is that which is non-excludable (one person’s consumption does not restrict the amount of good available to another) and non-rival (everyone in a particular community can benefit at the same time). This is in contrast to private goods, which demonstrate high excludability and high rivalry; those who

¹⁰⁸ As laid out in the long term objectives for One Health at the Atlanta meeting (Normandeau 2011)

¹⁰⁹ From Scoones (2010: 13)

do not or cannot afford to pay will not benefit, and once a private good or service is “consumed”, it cannot be consumed again. In this economic context, a Global Public Good (GPG) can be thought of as “public goods with significant cross border benefits on a global level” (Smith *et al* 2004). An expanded definition of GPG pertaining to international health is:

"a good which it is rational, from the perspective of a group of nations collectively, to produce for universal consumption and for which it is irrational to exclude an individual nation from consuming"(Smith and MacKellar 2007)

Many aspects of One Health ultimately fit within this definition; however in order to determine whether its classification as a GPG is the *most appropriate* in terms of long and short term objectives promoting global participation and national decision-making authority, further examination and understanding of GPG theory is required.

3.7.2 Global Public Goods in the Context of Infectious Disease Control

In terms of infectious disease control, Global Public Goods theory provides a framework for the promotion of *international collective action* towards global disease control; a political process which ensures the benefits of infectious disease control are maintained in the absence of “free-riding” by some states. (Smith *et al* 2004, Smith 2003). Since the late 1990’s, policy makers in the world’s richest countries have been urged to expand the portfolio of health assistance to developing countries, not just from a humanitarian perspective, but also as a “selfish” investment designed to protect national health security. Global Public Goods are a key concept in this new interpretation (Smith and MacKellar 2007). It is perhaps within this “collective action” discourse that One Health has fallen into its GPG classification.

However not all elements of infectious disease control can fall under the GPG remit, as many diseases only occur within specific socioeconomic or geographic domains, and as such their control cannot be promoted as a GPG. Some authors maintain there exist only a certain number of infectious diseases for which control can be considered a “true” GPG, such as HIV/AIDS, tuberculosis and eradicable diseases with no animal reservoir such as polio (Smith *et al* 2004). Furthermore, despite the benefits gained from infectious disease control at a global level, the ongoing, vast amounts of finance¹¹⁰ to achieve this can be an issue without a “global government” to pay for it. This is in contrast to *national* public goods for which the government of that country will normally intervene either through taxation or direct provision of goods (Smith *et al* 2004).

The other aspect which needs to be considered is the *type* of interventions which can be classified under GPG theory. Despite GPG perspective informing a number of Global Health Initiatives¹¹¹ cited as the “most promising form of collective action in a globalising world” (Clark 2010), the form of intervention taken by these initiatives does not always fit with GPG perspective. For example many interventions for “Global Public Goods” such as HIV/AIDs and malaria control include free provision of *private* goods such as bed nets and subsidised antiretroviral drugs¹¹². The fact that a good is subsidised or freely provided does not change the nature of the good; it merely widens the scope of who can attain them, usually for a finite period of

¹¹⁰ Defined by Smith and McKellar (2007) as *additionality*, whereby the provision of an adequate supply of GPG requires spending more than would have been spent in the absence of collective action

¹¹¹ Stop TB, Roll Back Malaria, GAVI Alliance

¹¹² <http://www.theglobalfund.org/en/about/?lang=en>

time¹¹³. Furthermore, whilst the main focus of the GPG perspective may be to encourage collective action for health at the global level, there remains one distinct emphasis: for GPG theory to work, it must encourage “mutual benefit” through financial contributions from both rich and poor countries, as distinct from donations of “aid” from the rich to the poor (Ng and Ruger 2011). True GPGs are depicted as “self-interested use of domestic money”, therefore different to the donor-recipient relationships of most aid and philanthropic partnerships which promote their programmes as GPGs (Smith and Mackellar 2007). Therefore the challenge remains how to encourage participation of all countries, rich and poor, into the One Health as a global public good narrative, when their health priorities are vastly different? As will be seen in subsequent chapters of this thesis, notwithstanding their success, One Health approaches to date have been largely top down, with intersectoral collaboration occurring as a result of specific mandates attached to international donor funding surrounding HPAI.

3.7.3 The Policy Challenge of the Global Public Goods Perspective: Where Can they be used?

Despite enjoying increased attention in international health and development circles in the first decade of the 21st century as a means for global resource mobilisation, GPGs is now at risk of “being attached to anything promoting development” (Smith and MacKellar 2007). In order to overcome the “fuzziness and trendiness¹¹⁴” of its association with international collective action and development, it has been

¹¹³ Subsidy of private veterinary goods by NGOs is a key implication for long term failure of Community Based Animal Healthworker (CBAHW) programmes across Africa (personal observation).

¹¹⁴ As described in Smith and McKellar (2007)

suggested there are only two areas where the GPG concept can be usefully applied to global health issues: research and development (R&D), and infectious disease control in the forms of surveillance, immunisation and other preventative measures (Smith and MacKellar 2007).

3.7.3.1 Health Research and Development

The private sector is now the largest provider of research resulting in new drugs and technologies (Smith and MacKellar 2007). Despite this, the shortcomings in its provision, particularly in low income countries, is well known¹¹⁵. A GPG perspective promotes collective action to ensure diseases affecting people in the world's poorest countries are considered; as a result there has been an explosion of global public-private-partnerships (PPPs), particularly in the field of "neglected" diseases (Smith and MacKellar 2007).

3.7.3.2 Communicable Disease Control

Although Global Public Goods have a role in the control of infectious disease, this is not the case in all countries, or for all diseases. GPG theory only applies to situations where control of a disease in one country is beneficial to another; for example eradicable diseases such as polio, swiftly-moving diseases such as SARS and HPAI, and trade diseases including Bovine Spongiform Encephalopathy (BSE). In this sense, defining One Health as a GPG is appropriate. However, some authors argue that GPG theory has actually "fuelled the proliferation of specific infectious disease-targeted programmes" (Smith and MacKellar 2007). Promoting One Health as a

¹¹⁵ No more pronounced than in the "10/90 gap", where it is claimed that only 10% of global health research is devoted to conditions that account for 90% of the global disease burden (Stevens 2004)

GPG could therefore inadvertently encourage vertical approaches to health challenges, such as that seen with the international response to HPAI¹¹⁶. This conflicts with wider philosophies surrounding horizontal and more holistic approaches to health outside a crisis situation.

In conclusion, whilst GPG has its virtues, care must be taken to ensure that framing One Health as a GPG will not discourage the participation of developing countries, or corrode the wider One Health philosophy of promoting integrated, holistic approaches to health¹¹⁷ in the 21st century. More importantly, advocates of One Health should be aware of the "fuzziness" and "trendiness" associated with "anything promoting development considered a GPG" (Smith *et al* 2004). By definition, labelling One Health as a GPG may "neglect most aspects of health", and certainly does not allow for the prioritisation of health issues by individual countries (Smith *et al* 2004).

Under a Global Public Good label, the OHGN could aid international decision-making and policy development through facilitating partnerships and alliances between developed and developing countries; that is, promote international collective action. However, defining One Health in this way could also be seen as simply promoting the self interest of particular countries¹¹⁸, further contributing to suspicions of "clandestine motives" of developed countries, discouraging many low and middle income countries from engaging with One Health discourse (Hwenda *et al* 2011, personal communication). If One Health is to progress from its current

¹¹⁶ Smith and McKellar (2007) singled out HPAI as "an ideal context" in which to press for a GPG response

¹¹⁷ Incorporating human, animal and ecosystem health

¹¹⁸ The present picture would suggest these "particular countries" are situated in north America and Europe

narrative of securitisation and EID prevention towards a more holistic, livelihoods approach relevant to a wider number of countries and regions, GPG theory is probably not going to support this in its entirety. Particularly in terms of flexibility for individual countries to interpret how the approach is used; we should be aware of the limitations of “branding” One Health in this way.

3.8 Conclusion

Through examining One Health in light of the recent history of global health governance and the Global Public Good perspective, this chapter has attempted to explore the first, internationally focussed proposition of this thesis, that

“One Health occupies a precarious position within the complex dynamics of Global Health Governance in the 21st Century”.

The examination of the changing approaches and strategies of the WHO since its origin in the 1950’s is a good example of how dominant health policy narratives come and go – and come again - over the years. As demonstrated in the introductory chapter of this thesis, it would seem that One Health has a solid foundation, given its overlaying philosophies of multi-disciplinarity, co-operation and holistic, integrated approaches. Despite this, One Health advocates should be wary of seeding the approach too deeply within a single, currently trending governance framework such as the Global Public Goods perspective, to avoid its possible abandonment when the Next Big Thing comes along.

This chapter gave a thorough overview of the various actors, sectors and networks which have a current stake in global health governance. Additionally, it explored the possible reasoning behind recent branding of One Health as a Global Public Good, with a warning to ensure valid arguments to do so, in order to avoid criticism around use of the GPG tag as a “general purpose fundraiser” (Smith and McKellar 2007). Whilst concurring that One Health as a GPG will indeed promote “international collective action” to address the interface between animals, humans and the environment in the 21st century, one of the biggest challenges is how to ensure this occurs in the absence of any “global government” to fund it (as discussed in Smith *et al* 2004). The OHGN may be a step in the right direction; however underlying issues of governance and leadership should not be avoided in an effort to protect short term sensitivities¹¹⁹. Furthermore, as GPG perspective does not provide for disease prioritisation, agenda-setting by more powerful nations could occur; an aspect of health governance which has been heavily criticised in the past¹²⁰. Additionally, the current economic definition of One Health as a GPG could actually *restrict* many underlying philosophies of the concept, particularly alternative narratives surrounding “equity, access and rights” (Scoones 2010). The GPG emphasis of *mutual benefit* to both rich and poor countries does not mean the types of donor-aid relationships which have largely driven One Health practices until now¹²¹.

¹¹⁹ As is implied with the “governance with a small g” terminology (Normandeau 2011)

¹²⁰ See for example Walt (1993), Godlee (1994), Brown *et al* (2006)

¹²¹ The response to HPAI in Africa and Asia is a pertinent example

I feel the background evidence within this chapter justifies my depiction of One Health's position within the global governance context as "precarious"; One Health occupies a precarious position in the newly emerging frameworks of global health governance as much as any other "new" initiative, given the fickle nature of the context. We don't as yet know where this complex, multi-actor approach is headed; Global Health Initiatives may well be a thing of the past in twenty years time, new health challenges may emerge, possibly resulting in a return to more rigid health approaches dominated by traditional health actors such as the WHO. In essence, One Health needs to be prepared for all these situations and more; it should not rush to align itself with perceived "buzzwords" if it endeavors to become firmly entrenched in health dialogue and environmental management into the 21st century and beyond.

CHAPTER FOUR

“ONE HEALTH BY ACCIDENT”: CONTROL OF HUMAN AFRICAN TRYPANOSOMIASIS IN UGANDA

“Politically endorsed national One Health structures could help ensure successful, sustained functioning of less formal collaborations”

4.1 Introduction

This chapter focuses on a multi-dimensional case study conducted in the East African country of Uganda, examining the predominant policy narrative for the control of Human African Trypanosomiasis (HAT) or “sleeping sickness”. Inter-ministerial co-operation for this historical, “neglected” zoonotic disease of significant regional public health significance has been institutionalised for the better part of two decades. On the surface, Uganda appears to be a “model country” in Africa for the promotion of state-led One Health approaches for zoonotic disease control; however further investigation into the ministerial frameworks reveal a number of institutional bottlenecks which will require negotiation if this “permanent One Health platform” is to succeed in future. This chapter also looks into the community responses to “Stamp Out Sleeping Sickness” (SOS) a recently-administered DfID Public-Private-Partnership (PPP) against HAT, and identifies the challenges of implementing a community-driven “One Health approach” to disease

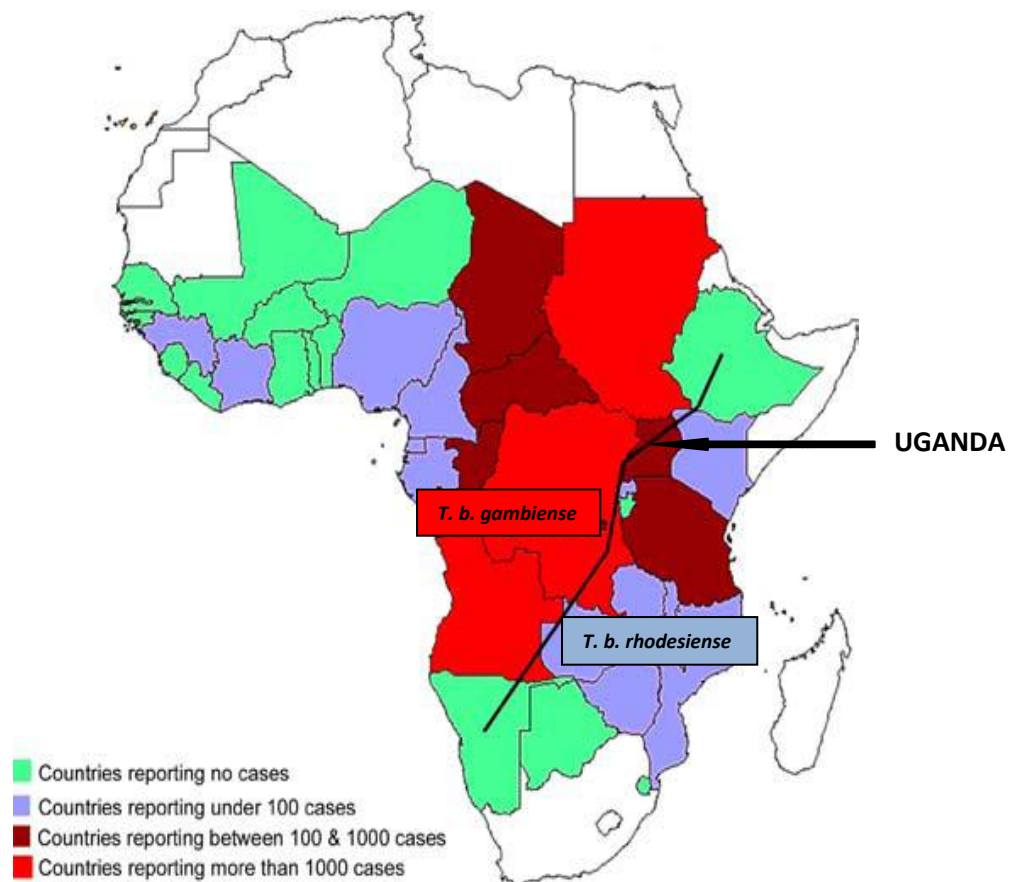
control where government resources are scarce, or overarching policies for support of the approach are lacking.

The empirical data for this chapter was collected during a number of field trips to Uganda during 2010-2011, in conjunction with the Stamp Out Sleeping Sickness (SOS) programme and ICONZ. This chapter builds on the second proposition forwarded within this thesis that “*Politically endorsed national One Health structures could help ensure successful, sustained functioning of less formal collaborations*”. Using a qualitative case study methodology, I aim to examine some of the current One Health practices undertaken in Uganda to address zoonotic disease, including an existing inter-ministerial platform for HAT, and discuss the possibilities for its expansion in time to cover multiple zoonoses.

4.1.1 Background to AAT and HAT in Africa

Human African Trypanosomiasis (HAT) is found throughout Sub-Saharan Africa, transmitted by the vector *Glossina* tsetse fly. There are two forms of the human disease, roughly separated by the Rift Valley: The acute, zoonotic *Trypanosoma brucei rhodesiense*, found in eastern and southern Africa, and chronic, non-zoonotic *Trypanosoma brucei gambiense*, found throughout western Africa. Uganda is the only country to have both the acute and chronic forms of disease (Map 2). “Nagana” is name given to the corresponding syndrome Animal African Trypanosomiasis (AAT), caused by various species of trypanosome also transmitted by the *Glossina* tsetse fly.

Map 2: HAT Endemic Countries showing separation of *rhodesiense* and *gambiense* and the two forms in Uganda (Simarro *et al*, 2008)



Tsetse and trypanosomiasis control and eradication programmes in Africa have a long history, dating from colonial times when European powers were concerned with human epidemics¹²² and the loss of animal productivity associated with the disease (Schofield and Kabayo 2008). “Unsophisticated” control efforts¹²³ up until the 1960’s were largely successful, leading to frustration amongst many “elder practitioners” at the current HAT status across Africa (Molyneux *et al* 2010). Since independence, cases have been steadily rising; 20 of the world’s 25 poorest

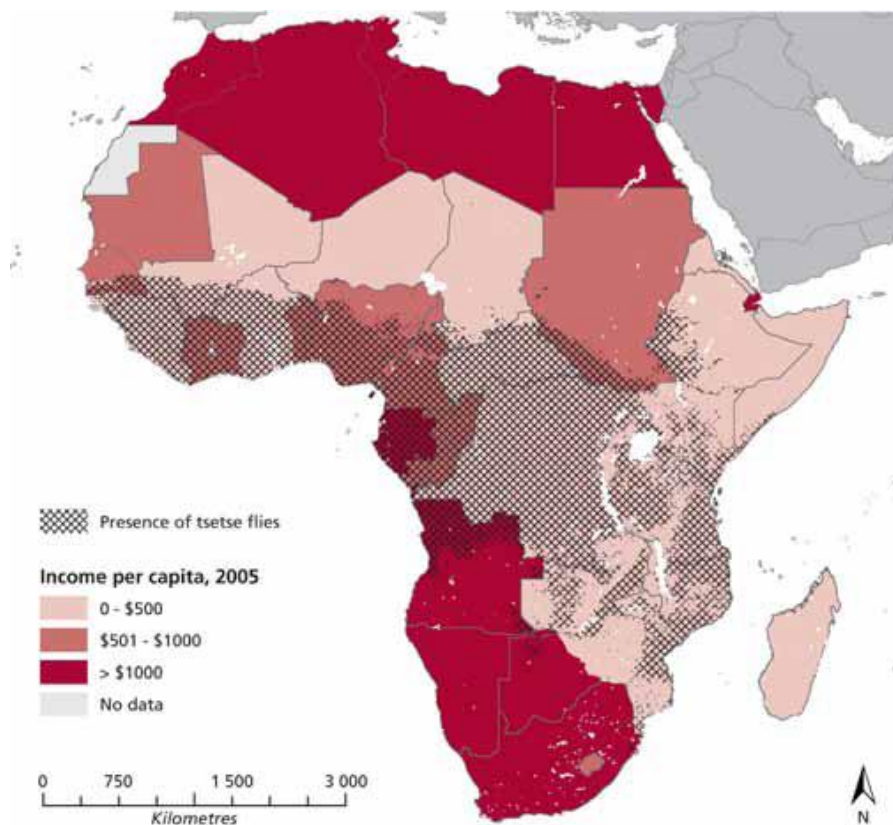
¹²² 300 000 people were estimated to have died around the shores of Lake Victoria in 1896 (personal communication)

¹²³ Undertaken by colonial powers, based on active surveillance and treatment of human cases along with ecological interventions of the tsetse habitat

countries¹²⁴ are tsetse-infested African nations, with 50-60 million people currently exposed to the bite of a tsetse fly (Cattand *et al* 2010, Map 3). Some have blamed the “wars of independence” for the rise of HAT incidence across Africa since the 1960’s, where HAT control programmes were disrupted through the destruction of colonial infrastructure, or abandoned as a result of the “punishment of success”¹²⁵ (Schofield and Kabayo 2008, Simarro *et al* 2008). One government official explains

“In the past there was a tsetse control department equipped with all facilities, then the department was absolved - they thought they had solved the problem - because the disease had been controlled at the lowest economic levels, people all of a sudden think this department is no longer relevant.” (Interview MAAIF June 2011).

Map 3: Overlay of tsetse distribution and poverty¹²⁶



¹²⁴ As determined by gross national income per capita

¹²⁵ Described by Simarro *et al* (2008) whereby successful control campaigns have resulted in lower priority given to diseases by public and private health institutions, resulting in loss of capacity to maintain disease control

¹²⁶ From Cattand *et al* (2010)

The lack of prioritisation has continued; HAT features on WHO's list of "neglected tropical diseases", and despite "political will at the highest levels" to resurrect collective action, many feel that there is still a long way to go before HAT regains the attention it deserves and reduces to the pre-1960's level (Molyneux *et al* 2010, Simarro *et al* 2008). Despite WHO reporting a decline in human cases since 2005, scepticism remains, especially given the potential for "gross errors" in NTD prevalence figures; (Molyneux *et al* 2010, Odiit *et al* 2005, and Fèvre *et al* 2008). It is estimated that of the 300 000 new cases of HAT every year, only 30-40 000 are recorded due to weakened health infrastructure, and inaccessibility to rural areas where the majority of cases are recorded (Cattand *et al* 2010). A recent article in a popular Ugandan newspaper¹²⁷ has reflected what those in the field have known for some time; the disease is often mistaken for other high profile diseases such as malaria and HIV:

"Remejio Kijoma, a fisherman at Bumanji village in the District has suffered from endless fevers for close to three months. He had entertained thoughts that he could have acquired HIV because he was losing weight by the day until he went to Kitovu Hospital in Masaka where he was diagnosed with sleeping sickness".

And later in the article:

"Fausta Nasebawanga of Busanga village in Kalangala almost lost her daughter because she was diagnosed with malaria in Kalangala clinics. It was after two weeks of endless malaria that Nasebawanga went to Kitovu hospital where her eight-months-old daughter was misdiagnosed with sleeping sickness."

An informant in Serere district has a similar experience:

¹²⁷ From an article by Martin Ssebuyira, Uganda's *Daily Monitor* Newspaper, 12th February 2012 <http://www.monitor.co.ug/artsculture/Reviews/-/691232/1320938/-/9o5q5/-/index.html> (last accessed 3rd July 2012)

“Some time back, people were dying from sleeping sickness. They were thinking it was HIV/AIDS, because that thing can also make you become very thin, so some people were just left to die like that. At least I know of a couple - they are surviving up till now - and they were perishing. When they went to Serere, and they were screened, found to be positive, and they were treated, they are now OK. They are surviving. And they would have died otherwise, they would have just died. There is nothing worse than neglected diseases” (Interview MAAIF June 2011).

Further complicating the treatment and surveillance issues is that the diagnosis and treatment of HAT is not straightforward. Both acute and chronic forms of HAT have a first stage, where trypanosome species are diagnosed on a finger-prick blood sample, and a second stage, where the parasite crosses into the cerebrospinal fluid and can only be detected via lumbar puncture. First stage sleeping sickness is often missed by health authorities; patients suffer from vague symptoms common to the body’s natural immune response¹²⁸; as such is often recorded as malaria (personal communication). This poses a problem once the disease gets to the second stage¹²⁹ as the diagnosis is harder to obtain in the absence of trained professionals, and the treatment, particularly for *rhodesiense*, is severe. There is up to 10 percent chance that death will occur as a result of treatment, however without treatment, patients will certainly die. The current level of technology for HAT diagnosis and treatment contributes its “neglected” status; Table 8 shows the currently available treatments for both first and second stage HAT, and the years in which they were developed: in the case of *rhodesiense*, no new drugs have been developed for over 60 years.

¹²⁸ For example recurring fever, swollen lymph nodes, headaches, joint pain, nausea

¹²⁹ Includes confusion, weight loss, slurred speech, encephalitis and prolonged periods of sleeping

Table 8: Currently available drugs for HAT treatment (Okello 2011)

DRUG	TRYPANOSOME SPECIES	STAGE	YEAR
Suramin	<i>T br. rhodesiense</i>	I	1921
Pentamidine	<i>T br. gambiense</i>	I	1941
Melarsolprol	<i>T br. rhodesiense</i> and <i>T br. gambiense</i> (although usually used for the acute)	II	1949
Eflornithine	<i>T br. gambiense</i>	II	1990

In conclusion, the intersectoral approach required for the control of tsetse and trypanosomiasis “lies at the heart of African rural development”¹³⁰, and as such the disease is a good choice for looking at the various policy interactions as part of a One Health case study. Despite the obvious linkages with human and animal health in the zoonotic *rhodesiense* form of HAT (herein the focus of this chapter), control of both human and animal trypanosomiasis has been shown to benefit human health and welfare directly through improved health and increased supplies of meat and milk, and indirectly through improved agricultural productivity through draught power and manure (Cattand *et al* 2010, Kristjanson *et al* 1999).

4.1.2 History of Human African Trypanosomiasis in Uganda

Uganda is presently the only country in Africa to harbour foci of both the acute and chronic forms of HAT; with a focus of *T b. gambiense* in the West Nile region in the northwest, and *T b. rhodesiense* in the southeast region of Busoga. Although tsetse flies have been in Uganda for “thousands of years”, the public health impact, and consequential academic interest in the disease, started during the early 20th century,

¹³⁰ From Cattand *et al* (2010)

when it was estimated a third of Uganda's population¹³¹ died of acute HAT (Waiswa and Kabasa 2009). The initial spread of sleeping sickness into Uganda was thought to have occurred as a result of European invasion along the Congo River to Lake Victoria, with *T. b. gambiense* entering the country as a result of human migration from central and western Africa (Waiswa and Kabasa 2009).

Cattle are essential for the maintenance of *T. b. rhodesiense* within human populations in Uganda (Welburn *et al* 2006, Fèvre *et al* 2001, Hide *et al* 1996). Major HAT epidemics in Uganda's history have been associated with large cattle losses; over a million Ugandan cattle died in the 1890's Rinderpest outbreaks across the country, resulting in large tracts of overgrown grazing land conducive to burgeoning tsetse infestations. It is thought the tsetse flies "ran short" of cattle to feed on during this time, and as a result reverted to humans for blood meals, which perpetuated the spread of disease during this period (Waiswa and Kabasa 2009). More recently, northwards spread of HAT has been associated with Lord's Resistance Army insurgence during the 1980's; people fled their homes, taking their livestock with them which led to overgrowth of tsetse territory:

"By 1990, there were only roughly one thousand cattle left in Soroti district as most of the cattle had died because of diseases, been rustled or eaten by the armed groups in the different conflicts....growth of forests as a result of the war attracted the tsetse flies....sleeping sickness was rampant" (Excerpts of Informant interviews, from Waiswa and Kabasa 2009).

The first case in the "present" Soroti/Serere outbreak was reported on 31st December 1998, and despite the implementation of tsetse control measures, 119 cases of acute HAT were recorded in the 18 months until June 2000 (Fèvre *et al* 2001). Net

¹³¹ Estimated to be around 300 000 deaths around the shores of Lake Victoria in the early 20th Century

migration of humans and livestock back into previously overgrown areas has been attributed to the northwards spread of disease during the latter part of the 1990's (Picozzi *et al* 2005, Fèvre *et al* 2001).

4.1.3 “A Sense of Urgency”: Recently Changing Patterns of Human African Trypanosomiasis in Uganda

Mass rural development programmes, funded by both the Ugandan government and foreign donors, were implemented upon the return of civic stability to Soroti and Serere Districts during the 1990's. A major re-stocking exercise commenced, promoting the return of cattle and other livestock back into the area, to assist the resumption of agro-pastoral activities. As various officials told me, the correct procedure which should have occurred during cattle re-stocking of Soroti and Serere Districts is contained within Uganda's Animal Diseases Act: Section 18 *Rules for Infected Areas*, with particular reference to the following Items:

Item 1: *No stock or carcass shall be moved in or from any such area without the written permission of the commissioner of livestock and entomology or the veterinary officer or inspecting officer in charge of the area;*

Item 6: *no person shall leave any such area without having complied with such precautions for preventing the spread of disease as may be required by the veterinary officer or inspecting officer in charge of the area;*

Unfortunately, little concern was given to this policy by either the Ugandan government or NGOs during restocking activities in the 1990's. One official blamed the lack of technical input into the re-stocking movement on its highly politicised nature; "*the re-stocking deal was done in the office of the Prime Minister by the time MAAIF was involved*" (Interview MAAIF June 2011). Many cattle came from *rhodesiense* endemic regions of the south-east; as such poor adherence to national policy advising the treatment of cattle before their removal from *rhodesiense*-endemic areas¹³² has largely been attributed to the northwards spread (Fèvre *et al* 2001, Picozzi *et al*, 2005). As one district official explained:

"(NGOs) have to follow the policy of government, especially when they are bringing livestock. They don't just have to come in (sic). Yet they came and distributed their animals without consultation. There is also a government programme for re-stocking, NUSAF¹³³, that has been here (in Soroti District)" (Interview MAAIF August 2010).

By 2005, there was a public health crisis in Uganda, with molecular technologies indicating acute HAT had spread into eight new districts in as many years, with only 150 kilometres separating the acute and chronic foci of human disease (Picozzi *et al* 2005). Overlap of the two diseases will spark a public health nightmare; at present the only way to differentiate between the acute and chronic forms of disease is by knowing which geographical area the human patient comes from. If the two forms collide in Uganda, it will be difficult to know what treatment to give the patient as the parasites are morphologically similar on blood and cerebrospinal fluid smears,

¹³² As yet there is no *legal* requirement for point of sale treatment

¹³³ The Government of Uganda's social action fund supported by the World Bank

however require different treatment. Additionally, there is presently no knowledge of the clinical effects of a mixed HAT infection.

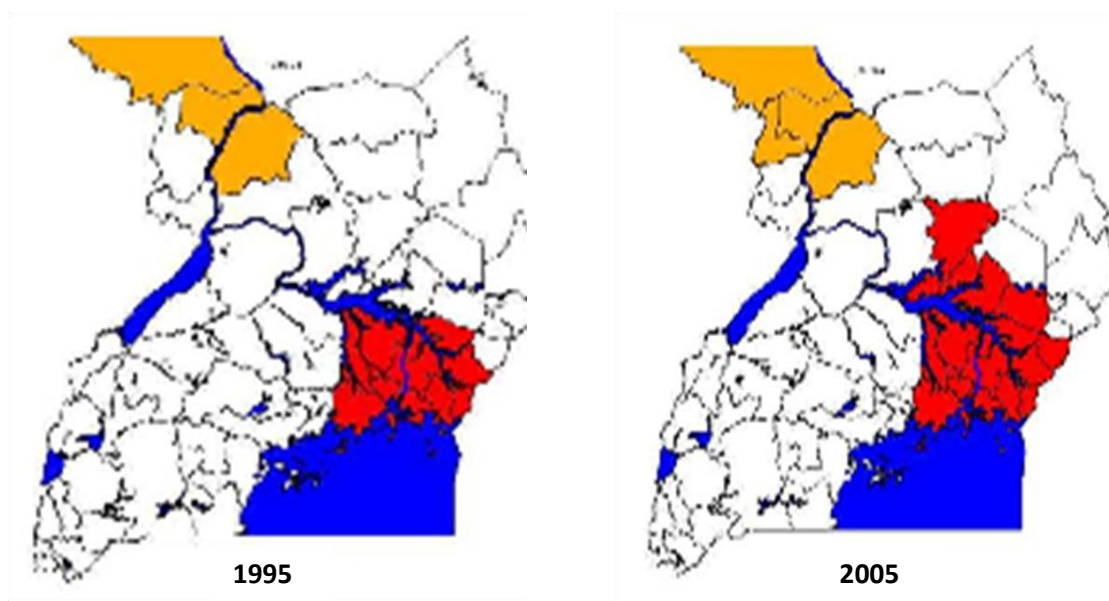


Figure 3: Northwards spread of HAT in 10 years showing 150 km separation of acute (red) and chronic forms (yellow) of HAT by 2005¹³⁴

4.1.4 Policy for Animal Disease Control: Uganda's Animal Disease Act

“We have a very broad Animal Disease Act, which is the major policy document that directs disease control in the country, and it has provisions for most of those things – the current problem is with the implementation.”

- Interview MAAIF, June 2011

The major policy for all disease control within animal reservoirs in Uganda is the Animal Disease Act¹³⁵, which describes the requirements for addressing an outbreak of the “notifiable diseases” including FMD, anthrax, Trypanosomiasis, rabies,

¹³⁴ From Picozzi *et al* 2005

¹³⁵ Available at

http://www.vertic.org/media/National%20Legislation/Uganda/UG_Animal_Diseases_Act_1918.pdf
(last accessed 3rd July 2012)

Lumpy Skin Disease and Newcastle Disease. Two major observations upon reading this Act is the “commencement” date of the 1st of January 1918 on the front page, and its non-specificity in terms of which diseases it covers. A separate Veterinary Public Health¹³⁶ Act exists, however this has also been described as “old”, for example the referrals to abattoir inspection being under control of the Ministry of Health¹³⁷. As one official shrugged “*these are the policies that are followed as no new ones have been written post independence*”. (Interview MAAIF June 2011).

A commonly cited reason for the delayed revision of the outdated policy is lack of evidence for disease prioritisation; policy dialogue cannot be initiated without prevalence data: “*you need to provide information on what the problem is, the nature of transmission, its economic and public health importance – then you can bring the stakeholders on board for their views*”. (Interview MAAIF June 2011). Another official explained the difficulty in securing funds for prevalence studies in the first place; “*as much as you don’t want a political crisis, we need the data for justification of spending....we are all fighting for meagre resources*”. (Interview MAAIF June 2011).

Within the Animal Disease Act, the official policy concerning notifiable livestock disease is that you *cannot move animals into new areas without clearance from veterinary officers* (GoU Animal Disease Act). In the case of an outbreak, the disease must be reported to the local government veterinarian by the LC1, parish or

¹³⁶ Traditionally assigned the roles of meat and milk hygiene and inspection for the control of food-borne zoonoses such as brucellosis and bovine tuberculosis

¹³⁷ A common post-independence policy across many East African countries, but since disbanded across many districts of Uganda where control of abattoirs and meat hygiene now falls primarily under the Ministry of Agriculture

subcounty chiefs. The Commissioner of Animal Health at MAAIF is then directly informed, and an emergency policy including quarantine, market closure and vaccination is formulated.

“It takes a short time, because those diseases you should inform the commissioner within 24 hours. When the outbreak comes, the DVO must start mobilising the farmers to control the disease, deliver vaccines if necessary.” (Interview MAAIF June 2011).

4.1.5 Overarching Agricultural Policy: Uganda’s Plan for the Modernisation of Agriculture (PMA)

Since receiving cabinet approval in 2000, the Plan for the Modernisation of Agriculture (PMA) is a multi-sectoral policy framework developed to shape the policy environment for Uganda’s agricultural sector (UMoF 2010). The PMA aims to better co-ordinate donor, government and private sector efforts to drive the change from subsistence to commercial agricultural production, with a vision “to eradicate poverty through a profitable, competitive, sustainable and dynamic agricultural and agro-industrial sector” (DANIDA 2005). The PMA consists of seven “pillars” of prioritisation in order to improve agricultural performance, including the National Agricultural Advisory Services (NAADS). NAADS was developed as the “new approach” to agricultural extension services, consisting of a semi-autonomous NAADS Board within the central Ministry of Agriculture, Animal Industries and Fisheries (MAAIF) to oversee extension services delivered by the private sector (GoU 2004, GoU 2010, Butcher 2009). Previous reviews have suggested a positive impact of NAADS (Butcher 2009, DANIDA 2005) however some authors feel that NAADS is more directed to the “economically active” poor, rather than the “chronic

poor”¹³⁸ with limited assets and access to groups, thus questioning its efficacy (Shinyekwa and Hickey 2007). Empirical data from Uganda suggests the NAADS approach is also lacking in focus, with one government official citing its “*rejection by technocrats*” within the MAAIF as the actual reason for its semi-autonomous arrangement (Interview MAAIF June 2011). In terms of economic rationalisation, one also has to question the fundamental efficacy of privatising what is essentially a public good. Again, overarching questions surrounding this and other examples of the “politics of policy”¹³⁹ will be a prominent focus of this Ugandan case study.

4.2 Power to the People? Policy Processes in a Decentralised Uganda

4.2.1 Uganda’s Political History and Current Government Structure

Yoweri Museveni’s National Resistance Movement (NRM) came to power in January 1986 after five years of guerrilla war. Uganda’s government system has been described as semi-authoritarian; occupying “a middle space” between democracy and authoritarianism and distinguished by their “lack of consistency in guaranteeing civil and political liberties” (Tripp 2004). Democracy is described as a political system which is “free and fair; where those voting also have an opportunity to stand being elected. Conversely, authoritarian regimes are organised political regimes, however the citizens – unlike in totalitarian systems – do not have to participate in organised political activities (Turner 2005). Some authors feel semi-authoritarian regimes have

¹³⁸ Including the elderly, disabled and HIV/AIDS affected households as described by Shinyekwa and Hickey (2007)

¹³⁹ See for example Scoones (2010)

the capacity to send “mixed signals” to a population; for example despite Museveni’s assurance of press freedom, human rights organisations have described cases of illegal detention and torture of suspects critical of the government, particularly journalists (HRW 2011). Museveni defended Uganda’s no-party “Movement” system, in place until 2005, with the rationale that “preindustrial countries like Uganda were not ready for parties because of the persistence of sectarian tendencies” (Tripp 2004). This statement may have some underlying truth; despite progressing to multi-party politics in 2006, Museveni has retained his hold over Uganda’s presidency for a further two terms; leading some political commentators to surmise that, despite the criticisms of his leadership style, “Mr. Museveni brings security to a country that remains ill at ease with itself and is still haunted by the bloody rule of Idi Amin” (The Economist 2011)

4.2.2 Decentralisation and Public Participation

Decentralisation structures were put in place from the inception of Museveni’s rule in 1986, when elected Resistance Councils promoted political and administrative decentralisation. The Local Government Act was passed in 1997, renaming the Resistance Councils as Local Councils and outlining their roles and responsibilities (Kapiriri *et al* 2003). To this end, Uganda has decentralised all its line ministries – including the ministries of health and agriculture – resulting in a transfer of power to the district level. Figure 4 (page 144) shows the “main vehicles of public participation” through the democratically elected local councils from district down to the village level (Kapiriri *et a*, 2003). However, concerns have been raised that

citizens in Uganda are “unlikely to take full advantage of opportunities to participate” as result of the aforementioned lack of respect of civil liberties, and government clientelism (Turner 2005).

Although the decentralised structure may be appealing in terms of its “power to the people” rhetoric, in the case of infectious disease control, decentralisation has been blamed for a wide variety of inefficiencies within the health and agricultural sectors. Interviews with government officials captured their frustration at the “lack of prioritisation” given to disease control at the local government level; describing how the implementation of a co-ordinated national approach for zoonotic diseases such as rabies was difficult within such a governance framework. Another area of grave public health concern is the situation of abattoirs across the country; despite the core function of meat inspection in the prevention of zoonoses crossing into the food chain, their control under local government authority means the national ministry “can’t touch them”¹⁴⁰. Interviews and several publications have alluded to a process of “recentralisation” of veterinary services in recent years (for example with abattoir inspections), however it is yet to be fully implemented, with some authors citing confusion amongst the District Veterinary Officers as the reason for impediment (Butcher 2009b).

¹⁴⁰ Interview within the Veterinary Public Health Division, MAAIF July 2011

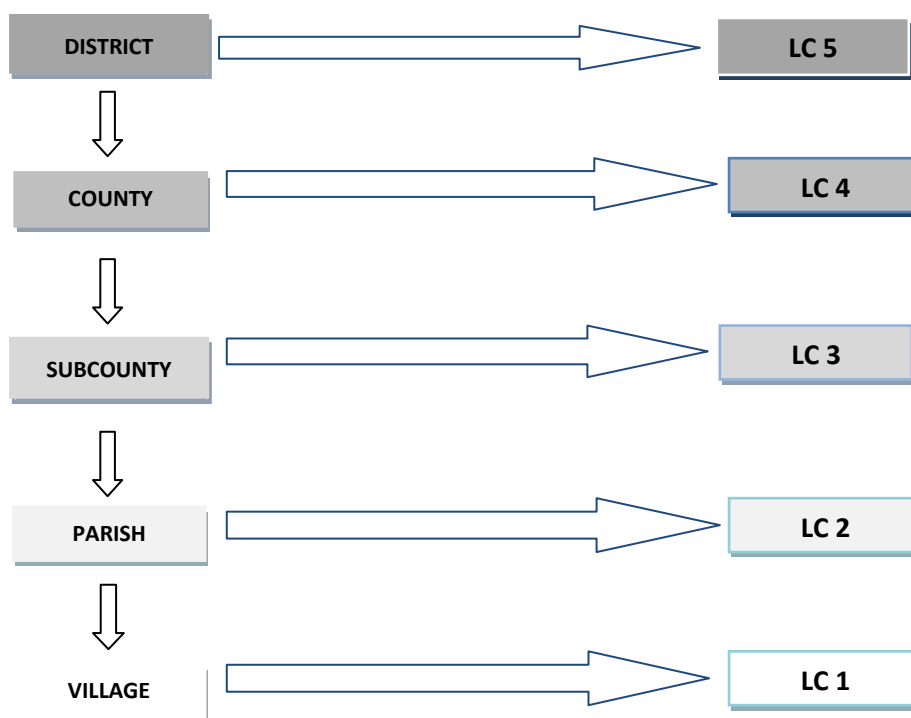


Figure 4: Uganda’s Structure of Decentralisation (Adapted from Kapiriri et al 2003)

Theoretically speaking, Local Councillors (LCs) can produce policy development workplans for submission to the district councillor (LC5) of that ministry, who can then forward them onto Entebbe for discussion. One District Veterinary Officer (DVO) also described the existence of participatory policy processes at the parish or subcounty level. He gave the example of livestock disease control, whereby local government councillors (LC2 and LC3) have the power to form policy and police it locally

“Yes they have the power, especially when they know the danger - even the farmers themselves have measures in place as a gap-stop (sic) in the villages, for example if they don’t want other farmers to bring their animals to a watering site”. (Interview MAAIF August 2010).

Despite such claims by ministry officials, I found relatively little evidence that communities understood the various roles and responsibilities of government, or the position they could play¹⁴¹. The only policy farmers could describe was quarantine for the notifiable diseases¹⁴², and some had experienced treatment of their cattle at market places by government veterinarians. Opinions of some ministerial representatives revealed the notion of increased political power of local communities as a result of decentralisation was at best optimistic, at worst misleading, with complaints from senior level technocrats that the whole policy system in Uganda is “*a process where the technical authority has been eroded.....the political decision is made prior to the process*” (Interview MAAIF June 2011). Accounts from another informant at the district level of government supported this observation:

Policies are supposed to be designed from the grass roots. But what we normally do here, most of the ideas, most of the policies, some of them are made without consulting the local people; they just assume people want this, most likely the politicians. The politicians are supposed to be coming to talk to their people, then also the heads of department, the professionals, they are supposed to also be getting their ideas from the people asking the people what they want, but it's rarely done. At least I've never seen them coming here to consult – they just come and say 'this is the policy' (Interview MAAIF August 2010).

This sentiment was also supported by accounts from the farmers, who largely felt the government should listen more to what they really want, given the contribution of livestock to the community:

“The problem we have, people who are in this (local government), the majority who have no cows are very more than us. When we raise our hands, say that we want treatment, they say no, we want a bore-hole. OK so now we

¹⁴¹ In contrast to the clear policy statement in Uganda’s National Policy for Delivery of Veterinary Services that “the central government (MAAIF) in conjunction with the local governments and the private sector shall sensitise the public on livestock policies” (GoU 2001)

¹⁴² including FMD, CBPP and rabies

are defeated, and they are not clear on us. We are behind.”(FGD Serere District, August 2010).

As often appears to be the case within government departments across Africa, whilst it was deemed “definitely possible” for communities to become engaged within the policy process, poor funding was blamed for why consultation does not occur: “*It requires a lot of money, going to talk to the people*” (Interview MAAIF June 2011).

4.2.3 The Policy Process in Uganda

Through the course of my research, government officials initially described Uganda’s process of policy development as a largely rational, linear process¹⁴³, whereby stakeholder participation is encouraged in response to a technical issue as determined by technocrats within the ministries (see Figure 5). Once the technical issue has been identified, district government representatives obtain the inputs of local stakeholders (largely farmers in the case of agricultural policy) from a sample of districts across the country, in order to “*identify issues that are concerns of the local people*” and include their representative views. Subsequently, a new policy is presented (in draft form) to what one ministry official deemed the “*serious stakeholders*” at the national level¹⁴⁴; in the course of a one or two day meeting the draft policy document undergoes a rigorous process of review and consolidation.

¹⁴³ Keeley and Scoones (1999) amongst others depict the largely-held theoretical view of policy as the “product of a linear process moving through stages of agenda-setting, decision making and finally implementation”

¹⁴⁴ Technocrats in sister ministries, also external stakeholders such as NGOs and the UN agencies

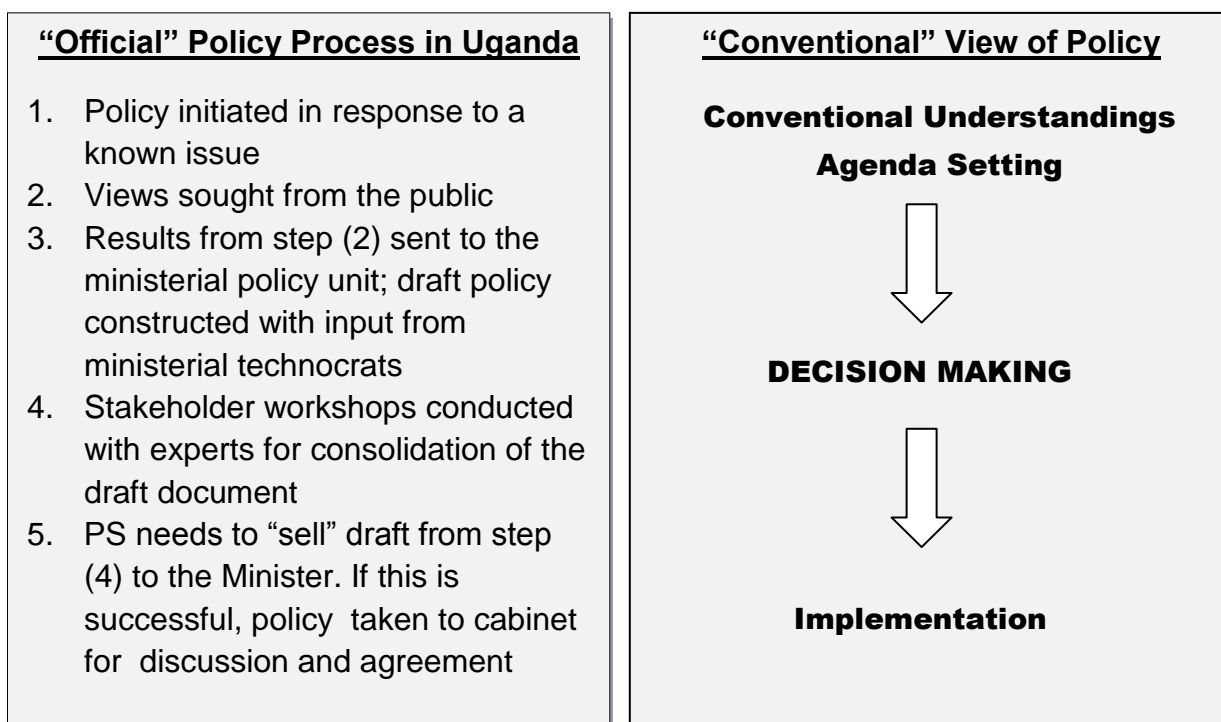


Figure 5: Uganda’s “Official” Policy Process¹⁴⁵ with its similarities to the “conventional” linear view of policy¹⁴⁶

When the draft policy is agreed upon at the national stakeholder level, the Ministry of Justice develops a legal draft which is then sent to the Permanent Secretary (PS); the PS must then “sell” it to the minister. At this point *“the department has done its job, it is up to the PS to look out whether it’s compliant with overall government agenda”* (Interview MAAIF July 2011). If approved by the Minister, a “certificate of financial implications” will be sought, whereby the Ministry of Finance determines the financial requirements for policy implementation, and guarantees funding. After this, the Minister for Agriculture will present it to cabinet for final approval, upon which it becomes official policy. In the event a policy requires legislative

¹⁴⁵ As outlined to me by MAAIF informants when questioned on the processes of policy development

¹⁴⁶ As described by Wolmer and Scoones (2005)

amendment or the creation of a new law for implementation, the process of enacting a bill will begin which can slow the process even further; *“it takes time, even some years, but depending anyway on how active the policy actors are – (laughing) we have seen some laws enacted in record time.”* (Interview MAAIF, June 2011).

4.2.4 The “Politics of Policy”¹⁴⁷: Diminishing Role of Technical Contribution

“The decision making is normally political. Yes, because the whole policy process moves towards a political decision, that is the intention....but the political decision is made prior to the process”

Interview MAAIF July 2011

In terms of factors which influence the policy making process, the “politics of policy” cannot be ignored; understanding “who gains, who loses and who calls the shots” is crucial in understanding policy decisions outside the paradigm of cost effectiveness and technical recommendations (Scoones 2010).

Incidences of politics overriding “common scientific sense” is not restricted to African nations alone; Tony Blair’s handling of the United Kingdom’s 2001 FMD outbreak is a prime example¹⁴⁸. In the case of Uganda however, and possibly other countries whose macroeconomic policies are determined through World Bank PRSPs, some feel there is a growing tendency for ministerial decisions to be made “based on theories” of the external (usually international) actors, as such

¹⁴⁷ Scoones (2010)

¹⁴⁸ The UK’s “draconian” *firebreak* policy response to the 2001 FMD outbreak was implemented with limited veterinary input (Gibbs 2003) and seen by some as a purely political move given the upcoming general election (personal comm.)

overshadowing the views of local people and problems. One official felt there is less time afforded to ministerial technical advisors compared to in the past; the entry point for policy decisions “used to be from the technical wing”¹⁴⁹, however the World Bank officials now “*just come, sit in the ministry of finance, discuss with those economists, then comes (sic) to MAAIF, meets the PS and the ministers, make their decision and go away.*” (Interview MAAIF July 2011). Some blame this “erosion of technical authority” on the rapid approach to policy change currently favoured by development specialists; perceived to be “*not appreciated by technical people*”, and as such they are becoming excluded in the policy process (Interview MAAIF June 2010). Whilst this could be brushed aside as just another example of public sector frustrations, it could go some way in explaining the ubiquitous apathy which seems to flood African government departments across the continent at present;

“By the time these (policies) come to us, political decisions have been made. So you have no choice but to keep working and implementing things you are so certain are wrong. Some of us we have lived through agony because all the time they are coming with the wrong decision - all we can do is try to “moderate” the exercise of the wrong thing, so that’s what we do.” (MAAIF June 2011).

Examples of externally driven policies include the “National plan for the control of Neglected Tropical Diseases” which had come from the WHO; so (as an official in the MoH clarified) “*not really a “national” plan at all*”. Within the MAAIF, NAADS was another clear example of how a “programme that had been rejected by the technocrats” was nevertheless pursued by the World Bank as a pillar in the PMA, and set up as a parallel programme outside the ministry:

¹⁴⁹ As laid out in accounts of the “official” policy process in the previous section

“Right from the word go, (MAAIF technical advisors) opposed (to NAADS), but because there was too much money at stake, it acted as a bait for some of the policy makers to accept. Even the PMA it failed to move on. That was also a World Bank driven programme – but you know these are the issues – you design a programme for which you have no capacity to fund. I wouldn’t mind if NAADS was implemented in a PMA environment, but the environment never existed! NAADS is ending in failure, in fact it is a disaster - we warned them long ago these things cannot work, it is too advanced for our farmers, that theoretical thinking is out of context of the realities on the ground, but once something is politically pressed we technical people stand aside. We don’t have a say – you know the thing doesn’t work, but because the politicians are supporting it, the donors are supporting it, you come out publicly and say it will work (laughing).” (Interview MAAIF June 2011).

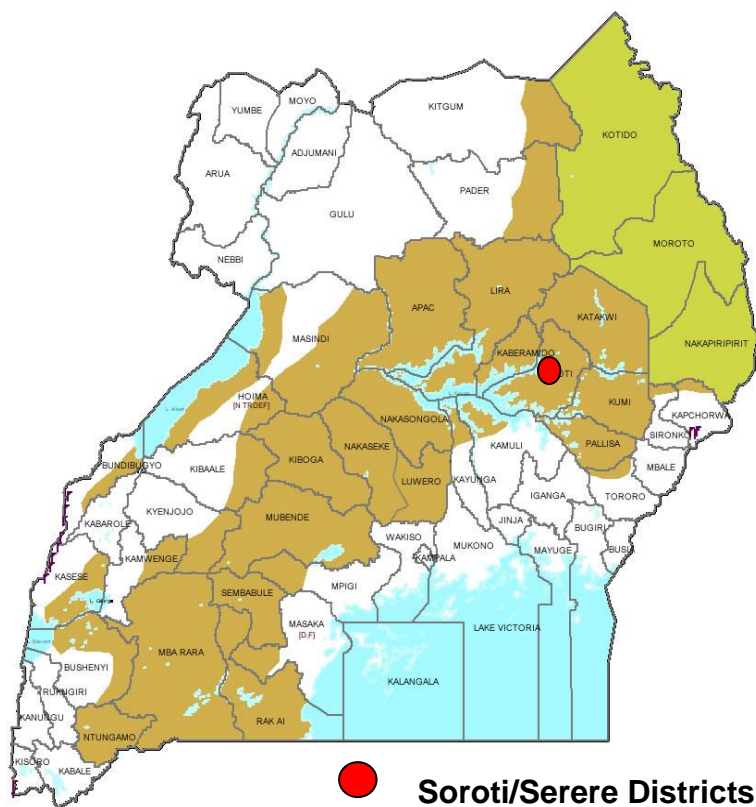
4.3 Situating the Field Research: Overview of Soroti and Serere Districts of Uganda

As described in chapter two, the fieldwork for the Ugandan Case Study was undertaken in selected villages in the Soroti and Serere districts of eastern Uganda. Access to these villages was gained through a series of field visits in 2010 and 2011, as part of my involvement with the Stamp Out Sleeping Sickness (SOS) campaign¹⁵⁰. Soroti and Serere districts lie in the middle of Uganda’s “cattle corridor” (Map 4) and covers an area of 2663 square kilometres, of which 2256 Km² is land and 406 Km² is water (GoU 2003). Situated on the shores of Lake Kyoga, the district is largely made up of wetlands and swampy areas draining into the lake, with an average of 81% of agricultural activities the result of mixed subsistence farming of livestock and annual crops such as cassava, groundnuts and millet (GoU 2003). Poultry and goats are the most commonly owned livestock in the districts; with 57%

¹⁵⁰Described in more detail later in the chapter, also www.stampoutsleepingsickness.org

of farmers owning cattle, of which a major productivity output is draft power (GoU 2003). Soroti and Serere are the two districts which received targeted interventions against Human African Trypanosomiasis (HAT) in phase two of the Stamp Out Sleeping Sickness programme. My first visit to the field occurred in July-August in 2010, at the time of baseline sample bleeding, with the second visit in June 2011, around seven months after the restricted application spray and trypanocide intervention had taken place in November 2010. This gave a unique opportunity to discuss with local communities both pre and post-intervention, and ascertain their response in terms of HAT risk perception, particularly with their understanding of the role of cattle.

Map 4: Uganda districts¹⁵¹ highlighting the “cattle corridor”



¹⁵¹ As described in Chapter Two, from the 1st July 2010 Soroti split into two districts of Soroti and Serere

4.3.1 Animal Health and Management in Soroti and Serere Districts – Community Perspective

Focus Group Discussions undertaken in 2010 and 2011 (Map 5 next page) with farmers helped identify the major aspects of animal keeping in the area, and the challenges of disease control. The priority problem cited in all groups was ticks and associated tick borne diseases (TBDs) including East Coast Fever (ECF), “Epio” (Anaplasmosis), “Heartwater” (Cowdriosis) and Babesia. Whilst some communities named the actual diseases, for others TBDs were assumed present given the described symptoms, for example blood-stained urine¹⁵² in the bulls. Mastitis, a secondary consequence of tick attachment and inflammation around the udder, was also cited as a problem in some communities. Other diseases include suspected cases of nagana¹⁵³, the acute viral infection Lumpy Skin Disease, and cataracts¹⁵⁴. Lesser mentioned diseases included Foot and Mouth Disease (FMD), fascioliasis and Thelazia (eye worm). Some villages mentioned Newcastle Disease, stating their chickens “*look like the person putting on the coat*”¹⁵⁵ before dying acutely. Another village mentioned their concern about the effect of disease on their draft cattle, emphasising the significance of this often-neglected livestock output; “*when the bulls get an infection, especially in the rainy season, they have no power and they can’t plough, so there is no money in the bank, the account is closed*”.

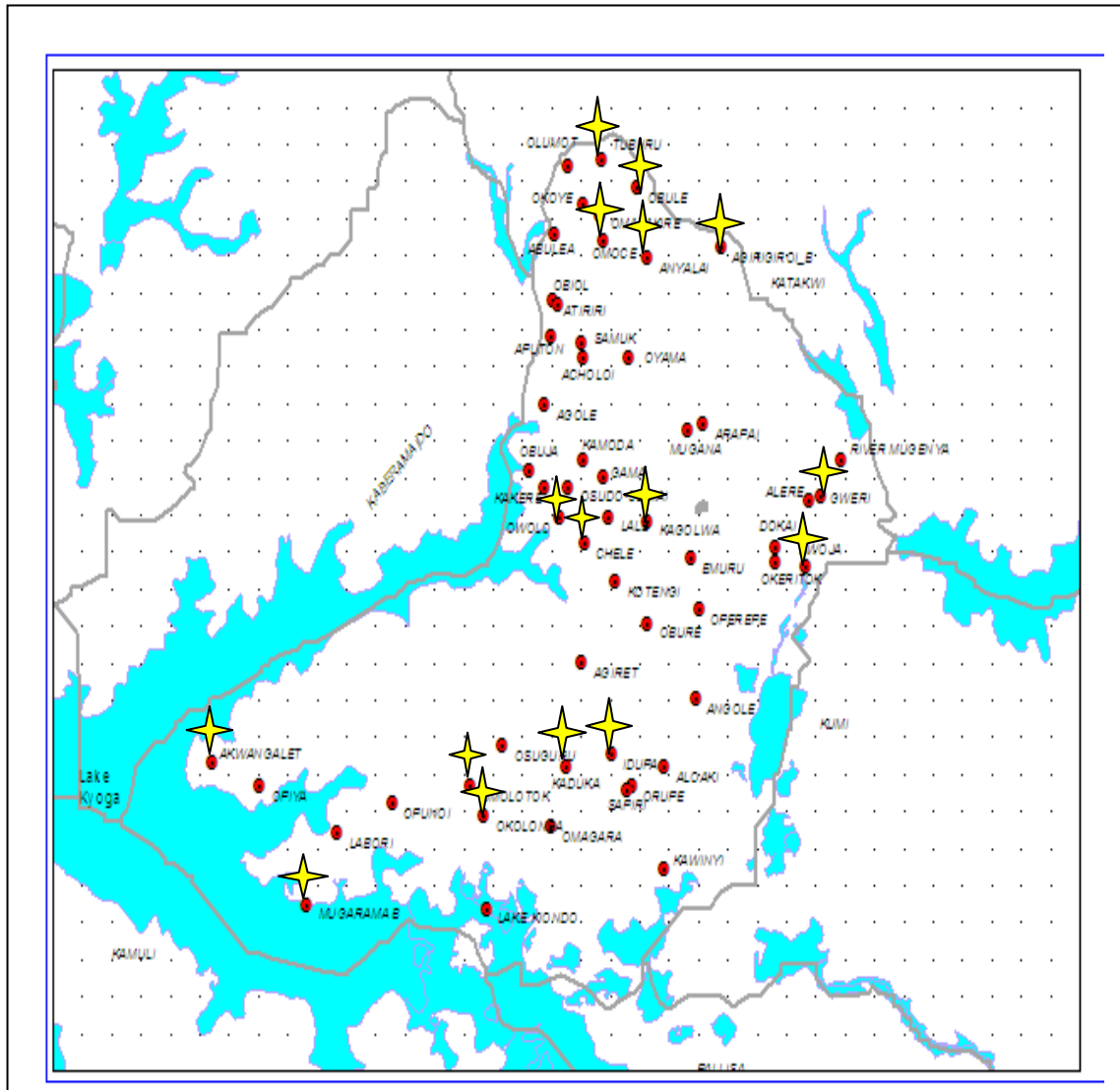
¹⁵² A common symptom of *Babesia* infection

¹⁵³ Based on descriptions of clinical signs such as swelling around the prepuce

¹⁵⁴ Likely indicative of ECF or other viral disease such as Malignant Catarrhal Fever

¹⁵⁵ Which I guessed to mean the hunched over appearance common to birds with NCD

Map 5: Uganda Focus Group Discussion Villages¹⁵⁶



When questioned about existing government programmes, respondents remembered the FITCA¹⁵⁷ and Rinderpest programmes from some time ago, along with recent vaccination programmes for CBPP, FMD and Lumpy Skin Disease. Cost sharing rabies vaccination is done yearly in most subcounties; triangulation suggests good participation in the programme, likely reflecting the high level of community

¹⁵⁶ Depicted by yellow stars; the red circles are villages where baseline trypanosome seroprevalence samples were taken

¹⁵⁷ Farming in Tsetse Controlled Areas, an EU project conducted in the East African region from 1997-2004

sensitisation and the reported decrease in human cases since its inception. Unfortunately the same could not be said for a 2010 CBPP programme, where infection and necrosis as a result of subcutaneous tail vaccinations caused the tails to slough off in many cases. Besides the physical distress caused to the animals¹⁵⁸, participants complained tail-less cattle are difficult to sell at the market, resulting in loss of income. None of the communities interviewed had experience of the government driven National Agricultural Advisory (NAADS) extension service, similar to a previous survey in the area where over 80% of respondents had either not experienced agricultural or veterinary extension services, or had not used them in over 12 months (Butcher 2009b).

In terms of the affordability of veterinary drugs and services, most respondents across the 16 villages indicated the drugs were “*expensive*” and they had to travel “*far*” to buy them (“*sometimes to Soroti*”). The majority of respondents indicated they bought their animal drugs from “quacks” (non-professional traders), with many concerned about the efficacy and storage of drugs. “*Quacks can’t tell live weight, we are suspicious of under-dosing, they don’t give the full course*”. Others bought their drugs on market days, although voiced similar concerns about the lack of professionalism from these drug suppliers; “*You know the storage of the drugs is not safe, in the market there. We are not trusting them (sic)*”. Accounts of “weak” drugs were common, particularly those who have their animals sprayed at market places¹⁵⁹; with many concerned about drug efficacy; “*after 2 days the ticks still haven’t come*

¹⁵⁸ As they cannot swish the flies away, subsequently making them difficult to handle

¹⁵⁹ Unregulated “Quack” sprayers are common in market places where they are paid by farmers to spray their livestock before leaving the market place

off - there is someone who is spraying these animals, it's his business, but he is diluting the spray so he can make more money." For other cases such as mastitis, there is simply no known effective treatment. Lack of professional advice necessitates the use of a "hit and miss" approach to therapeutics; *"people are using dewormers for other things apart from stomach worms then wondering why they can't get rid of the ticks"*. It is in this way that the absence of veterinary services contributes to the issues of drug resistance and residues in meat and milk ubiquitous across Africa. Another observation was that farmers appeared willing to pay for accessible veterinary drugs and services, in order to avoid wasting money on the *"half cooked jobs"* of non-professionals.

In general, community attitudes to government animal health services were surprisingly positive, with most villages accepting the need for quarantine, and also willing to take responsibility for the health of their animals, provided private veterinary services became more accessible and affordable. Some farmers wanted further development and enforcement of disease control policies; as one farmer explained *"what we had wanted, is for the government to come with a certain law, a policy, yes, so that people are forced to do something, and at the end, they will like it"* (FGD Serere District, August 2010).

4.3.2 Knowledge, Attitudes and Practices of Zoonotic Disease

Community knowledge of zoonotic diseases was extremely low in most of the interviewed villages, possibly accounting for the low perception of risk for those diseases they did know about. Rabies was the most easily identified zoonosis; all

villages were aware of this disease, with some, such as Awoja in Gweri district, experiencing human deaths. Cost-sharing rabies vaccination programmes had been ongoing in most of the Soroti-Serere parishes and despite supply issues in some cases, the programme was relatively well attended, possibly as a result of sensitisation from the human deaths;

“One dog bit a woman’s breast and a school boy some time back...there was a lack of sensitisation (they) just treated the wound – the wound healed but the boy died. But now people are sensitised and bring their dogs when there is a vaccination programme”. (FGD Soroti District, July 2011).

Outside of rabies however, there was an obvious lack of awareness of zoonoses, possibly attributed to the vague symptoms and lack of correlation with risk factors; *“it is rare, we don’t know it. Some of the people here even eat the dead meat, so we have not experienced any problems”*. Respondents in almost all villages described drinking “bongo” (raw milk); *“it’s traditional to eat sour milk, with the bread made from cassava, we mix it into a paste and eat it”*, with others saying *“we drink milk straight from the teat, it is hot and nice”*. Others were aware of the health risks associated with drinking raw milk; one man described how his wife became sick after drinking bongo, and they were told not to drink unpasteurised milk. Some respondents also indicated their possible experience with brucellosis, explaining *“it has malaria, when you take unboiled milk – you get fever which comes and goes, like malaria”*¹⁶⁰.

In terms of meat hygiene and associated food borne zoonoses, a common perception was that meat “in carcass form” induced suspicion; *“If someone came (with meat) on*

¹⁶⁰ The symptoms of brucellosis include undulating fever and swollen lymph nodes, which could be confused with malaria

the bicycle with a lot of flies around it, we would not eat that meat, we would not buy that one". As long as the animal had been seen alive beforehand, communities were happy to eat it: *"It is all good meat – as long as we see the cow standing up, we don't mind"*. This extended to the "green meat" of pork¹⁶¹ and the commonly eaten cystic pork meat which is a risk factor for epilepsy (neurocysticercosis). Many people described how epilepsy cases seemed to be increasing in the district, admitting almost everyone ate *"those things that look like rice"*¹⁶².

Knowledge of a particular disease seemed to come from a witnessed association between a habit and the symptoms; for example, some who felt consumption of cystic pork was "bad" described their knowledge of *"a butcher slaughtering pigs only, the family is only eating pork, but most of the family members became epileptic, so we related it back to pork"* (FGD Soroti District July 2011). Some individuals also mentioned they had received sensitisation through a local NGO programme, indicating they now *"feel unsafe"* purchasing meat which had not been inspected by the veterinarian as *"quacks will treat with drugs which put chemicals into the meat"*. One woman was particularly well sensitised on zoonoses from trainings given by the local veterinary officer; I feel women are an important investment in zoonoses as they are more concerned, and have a greater impact, on food preparation and hygiene. At one FGD my question on milk practises was met with bursts of laughter by both men and women; an explanation by the translator revealed the men in that

¹⁶¹ Potentially associated with porcine stress syndrome (PSS), another technician indicated it is a sign of African Swine Fever, neither of which are zoonoses however green meat of any kind should alert suspicion

¹⁶² *Taenia solium* cysts

village blame the women if they get sick from eating bad meat or drinking unboiled milk.

Jokes aside, it appears there is a strong requirement for increased advocacy across the board for the “silent” zoonoses such as brucellosis, cysticercosis and Bovine Tuberculosis; the majority of communities are simply unaware they exist, and as one central government informant explained, they do not get political backing because there are “bigger problems” in terms of risk perception;

“The public will co-operate with Public Health programmes for diseases which spread quickly and are dramatic, for example Ebola, Marburg, Rabies – but for these chronic endemic illnesses it’s difficult to make people believe it was because of a practice or something they ate, when they have been eating meat and drinking milk every day of their lives” (Interview UMoH July 2011).

Even more upsetting is the “fatalistic” attitude of the rural poor which I have seen so often across Africa; as this extract from an interview with the local government veterinary officer shows, people accept they are sick because they simply do not know what the problem is, and as such cannot find a remedy:

“Like the story that the man who was telling us¹⁶³ he really suffered for quite a long time. He kept on treating himself against malaria, when it was not actually malaria. There are people in the villages there who are sick every day. They have given up with the treatment, they think it’s just the way it has to be - “me I am always sick like this, let me just wait until the day I die” - this is because they fail to discover what they are suffering from.” (Interview MAAIF, August 2010).

¹⁶³ Referring to a HAT patient at Serere District hospital we had visited the previous day

4.3.3 Marketing Livestock

The majority of farmers market their animals locally on fixed days of the week, although some sell amongst themselves without involving the major markets. Markets where livestock are sold include Arapai, Tubur, Gweri, Bukadea, Kasilo and neighbouring Kumi District, with most farmers indicating they walked their animals to these markets, often between four and six hours away. As is often the case in smallholder systems, farmers indicated they sell livestock when cash is required; for example school fees, dowry or when someone is sick. One farmer illustrated this by explaining the size of animals they sell “*depends on the demand, the pressure you have – if you have big problems, you sell the biggest animals, if you don’t have big problems, you just sell the small animals!*” The younger animals are preferential for dowry, so farmers often find themselves disposing of young stock out of necessity (a guaranteed sale) when these animals should theoretically be used to build up the herds.

Farmers have little control over what prices they receive for their animals; a phenomenon common to many parts of Africa¹⁶⁴. As one farmer explained “*we sell at a low price because we have walked them*”; the bargaining power to get decent prices for livestock is lost due to the long distances from market. Many farmers indicated they sell unhealthy animals¹⁶⁵ (despite only wanting to buy those in good health), which has repercussions on meat entering the food chain. Some indicated that word of mouth will alert them to days when good market prices can be expected;

¹⁶⁴ Previous field experience in other countries including Kenya, Mali and Ethiopia has shown the same

¹⁶⁵ Another extremely common practice across Africa, see also the Nigerian case study Chapter Five

“when the traders arrive from Sudan, we get good prices. And also the NGOs and the government (for re-stocking programmes) they give us good prices”.

4.4 Where there is no Policy: Stamp Out Sleeping Sickness

4.4.1 Community Based Control: Stamp Out Sleeping Sickness (SOS): Phase One 2006-2008

The Stamp Out Sleeping Sickness (SOS) campaign was launched in October 2006 in Kampala, Uganda. This campaign brought together public and private stakeholders including the multi-national drug company CEVA Sante Animale, academia¹⁶⁶ and the public sector¹⁶⁷. The aim of the campaign was first and foremost to maintain a barrier zone between the acute and chronic HAT foci, resulting in an initial “emergency campaign” to block treat all cattle in the northern-most HAT affected districts of Apac, Lira, Dokolo, Amolotar, and Kaberamaido. This huge effort¹⁶⁸ mobilised students from Makerere University’s FVM, leading to the creation of the Makerere In-training Community Service (MINTRACS) model still used for final year veterinary students. Subsequent to the initial trypanocidal administration to “clean out” the cattle, students delivered a series of three sprayings with deltamethrin (Vectocid®), an acaricide which is also active against tsetse flies, thus prevents re-emergence of trypanosomiasis (including the human infective form) through the bite of infected tsetse flies.

¹⁶⁶ Universities of Edinburgh, UK and Makerere University Faculty of Veterinary Medicine, Uganda

¹⁶⁷ Represented by the Co-ordinating Office for the Control of Trypanosomiasis in Uganda (COCTU), which includes officials from both the ministries of Health and Agriculture

¹⁶⁸ SOS Phase I target area covered around 12000 square kilometres, consisting of a human population of around 1.5 million and 220 000 head of cattle (Butcher 2009b)

The Restricted Application Protocol (RAP) spray technique was used; a cost-saving and environmentally friendly technology that maintains endemic stability through spraying the predominant tsetse-feeding areas of cattle¹⁶⁹ (Torr *et al*, 2007). It was hoped that farmers (with the help of the 3V vet spray teams) would be encouraged to adopt a routine spray practice, thus leading to sustainability of the approach once the campaign ended. SOS partners also supported the mobilisation of five privatised “3V vet” operations within these initial districts, with the aim of sustaining the recently generated “spray” momentum and providing holistic veterinary services into the northernmost areas. A vast amount of literature has been published on Phase I of the campaign (2006-2008), including the political and institutional environment, socioeconomic impact and assessment of the 3V veterinary business models¹⁷⁰.

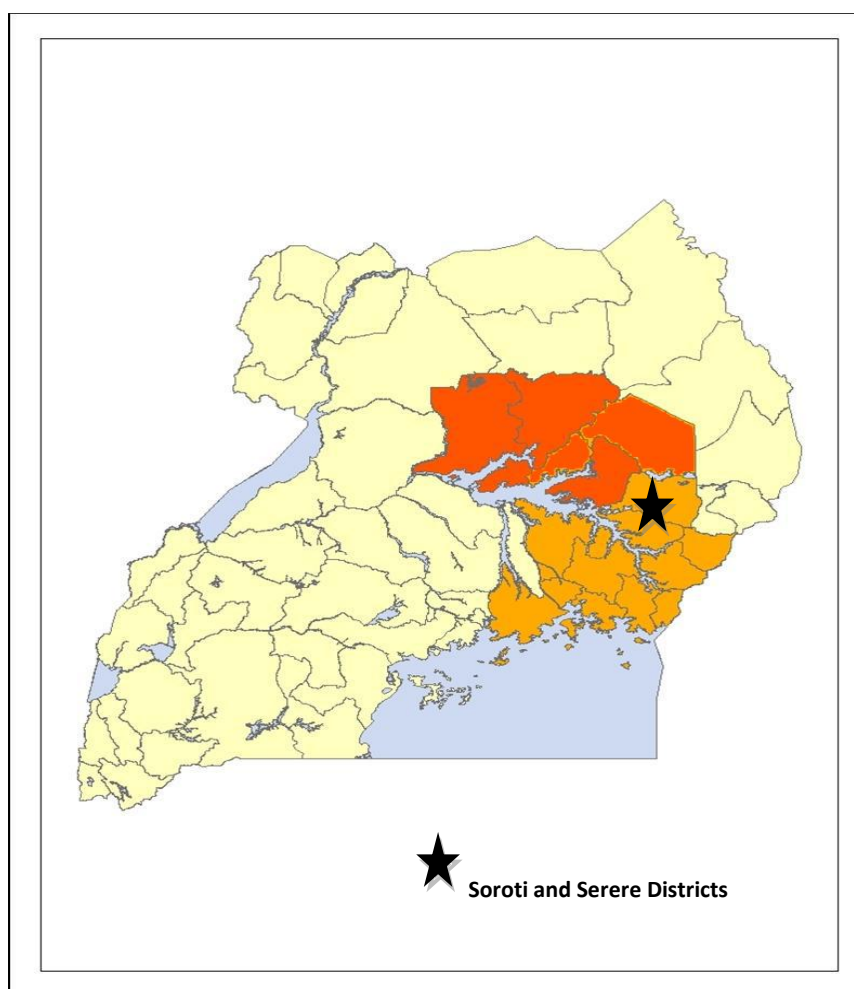
4.4.2 Stamp Out Sleeping Sickness: Phase Two 2008-2011

Phase two of the campaign (Map 6) aimed to treat a further 250 000 cattle across Soroti and Serere districts, and it is under this that my field work took place in 2010 and 2011. The first group of FGDs for this thesis were undertaken at the time baseline seroprevalence surveys were being conducted across the 55 intervention in August 2010, and the second half took place six months after the students completed the November 2010 spray and treatment regime (July 2011). Through the use of FGDs, I wanted to ascertain community knowledge and perception of risk surrounding zoonotic diseases, and evaluate the effect of the SOS mass treatment campaign had, particularly for zoonotic HAT.

¹⁶⁹ Belly and legs plus the ears for ticks

¹⁷⁰ See for example DFID Research Into Use (including Butcher 2009, Morton 2010, Shaw 2009), plus Okello *et al* 2011

Map 6: SOS Phase 1 (dark orange) and 2 (light orange) Target Areas



When asked what the purpose of the SOS campaign was, answers were vague, with most respondents simply replying “diseases”. Some indicated their cattle had been sprayed for ticks and tsetse flies but did not mention any association with HAT, nor understanding why their cattle were sprayed for these diseases. Further probing revealed many communities assumed the intervention was for FMD or CBPP, with a small number indicating nagana; others said they would be told what diseases people were testing for “*when the results come back*”¹⁷¹. Communities remained largely

¹⁷¹ This had still not occurred when I was there in July 2011, almost 12 months after completion of the baseline bleeding exercise which occurred in August 2010

unaware of the campaign's human disease objectives. This is similar to post-intervention findings obtained from the SOS I target areas, where only 12% of respondents knew their cattle had been treated to reduce the chance of contracting HAT (Butcher 2009b).

4.4.4 Community perceptions regarding tick and tsetse control

Given the importance of monthly spray regimes against tick and tsetse flies in order to break HAT transmission, I wanted to ascertain the current spray practices of farmers, particularly post-SOS. Respondents in both pre and post-intervention SOS villages described irregular spray patterns; *“every now and then”*, *“when we see ticks”* and *“when we have money”*. Only two individuals indicated a consistent approach to tick control: one a successful owner of improved Friesian dairy cattle, frustrated at the carelessness of neighbouring farmers:

“Some spray. Not all. Some can spray in 3 months once, in six months only once (sic). People are not willing to spray their animals, they are lacking education”. (FGD Serere District, August 2010)

None of the farmers across the 13 parishes reported they were currently using the Restricted Application Protocol (RAP). In terms of drugs used, only one farmer (Gweri) indicated he sprayed his cattle with Tsetse-Tick®¹⁷², all other respondents indicated the use of acaracides only, with popular brands being Norotraz®, Amitix®, and Tacktick®. No-one used Vectocid®, even in those in Awoja, where a 3V veterinarian reportedly has a drug shop.

Out of all the FGD participants, only one man remembered the name Vectocid®; *“we didn't ask, and we were not told”*, with others indicating *“we noticed the drug didn't*

¹⁷² Effective against both tick and tsetse flies

look the same as the ones we are used to, but they didn't tell us the name". Respondents in Asuret subcounty appeared marginally better informed than the majority, with one respondent replying *"we knew the drug was killing both tick and tsetse and if another one bites during time period it will not become infectious – but being old like me I can't remember the name"*. Despite participants being to "keep spraying" by the students, the message about using a *tsetse-effective* insecticide seems to have been lost. Of special concern was the lack of understanding towards use of the Restricted Application Protocol (RAP); in contrast to a March 2011 project update document¹⁷³, I received no indication that RAP was understood by the communities during the November 2010 intervention, or subsequently taken up by farmers across the district. As is often the case, I found communities had formed their own conclusions about why "only half the cow was sprayed"; ranging from the students being generally careless, to the more serious accusation that the students wanted to *"save the drugs and sell them later for their own money"*.

4.4.5 Community Perceptions Regarding SOS II Implementation

Field notes taken in August 2010¹⁷⁴ indicate that although I felt the SOS sensitisation visits to be largely well done, I was concerned the "one way" process¹⁷⁵ could potentially result in misunderstandings about the aim of the intervention, resulting in a low impact rate. I also felt a major message surrounding long term sustainability of the intervention was unclear, as this extract from my field notebook shows:

¹⁷³Wherein a statement read "farmers report animals treated with RAP to be healthier, more productive and to feed better" (Anonymous 2011)

¹⁷⁴ The time of initial sensitisation by Makerere students about the upcoming SOS intervention in communities across Phase II districts

¹⁷⁵ Students talking and communities listening, very little time given to listening to community questions and concerns about the upcoming intervention

“Lack of discussion re sustainability – students need to include this and explain the 3V system. They also need to get an idea of what is currently available in terms of animal health treatments and delivery system – i.e. what are they currently spraying with, where do they get it – what are the community’s concerns?” (Field Notes).

In terms of community perception about how sensitisation was conducted, many informants mentioned the language barrier; *“they were speaking Luganda, they couldn’t communicate to us”*. Others felt they received the information too late, and as such many cattle missed the treatment:

“The mobilisation was not good. There was no awareness. In fact it was even late when they communicated, so not enough people knew about the programme and didn’t bring their cows.” (FGD Soroti District, July 2011)

Many indicated they only brought their cattle that were “sick” as they thought these were the ones that needed treating¹⁷⁶. Another village told how they were simply not sensitised: *“They never met with the farmers, and that is the problem”*. At the central government level, an informant familiar with SOS was also concerned at the level of community sensitisation that occurred under the SOS programme;

“If you come in, don’t tell people what you are doing, start something for free then tell them they have to pay they won’t accept.....you need to assess whether people really can effectively participate in T&T control – farmers don’t see the need unless there is adequate sensitisation.”(Interview MAAIF June 2011).

Community sensitisation always has its challenges, many of which stem from internal village politics and as such cannot be avoided. Of greater concern however, was the perceived lack of professionalism students displayed towards the communities and their livestock. Remarks to this effect included: *“they just treated the animals then left, they said they were tired”*, *“some of the vets were rude”*, and

¹⁷⁶ *T. b. rhodesiense* does not cause clinical illness in cattle, hence *all* cattle are required to be treated as the perceived “healthy” ones could still be harbouring the human-infective parasite

“they were just spraying their backs, they were speeding the work. They were not taking it seriously”. One woman laughed as she explained

“These guys come and rush the work, they don’t explain things, they don’t talk to us – they are isolating themselves, it’s like they are scared of us”.

It appears that it was not just the communities who felt this way; a district government official who had been involved with the SOS campaign explained:

“You see I’ve told you, this spraying, it was not professional – the same as I saw it, in Akire, in Tubur, in Katine – here, the spraying was not done in crushes, they were just spraying as though they were spraying mosquitoes, they said they were tired!” (Interview MAAIF, July 2011).

In defence of the students, the impressive number of animals covered by the campaign in the allocated time-frame¹⁷⁷ undoubtedly resulted in a certain element of fatigue. However, poor mentorship has resulted in a loss of professional credibility in the eyes of the community. One of the major stated aims of the MINTRACS¹⁷⁸ programme is “to enable Makerere University to produce veterinary graduates able to address community’s needs” (Waiswa and Kabasa 2010). Increasing the exposure of veterinary students to rural communities is intended to bolster their confidence in preparation for the work force. However if students are not suitably mentored in communication skills and professional conduct, the result will be detrimental to the student, the communities, animal welfare and the SOS campaign in general. Greater post-intervention analysis is required to further understand the community perception of SOS Phase II, and as a result, the extent to which the intervention has impacted community attitudes and behaviour towards HAT prevention. Current perceptions

¹⁷⁷ Field reports indicate students treated over 160,000 cattle every three week block

¹⁷⁸ Makerere In-training Community Service Programme, a programme developed by Makerere’s Faculty of Veterinary Medicine to mobilise final year veterinary students to deliver the SOS intervention

that the student model was “well received by communities and DVOs”¹⁷⁹ however, appears to be somewhat in contrast to the field experience.

Furthermore, I felt my insights received at this time closely matched independent evaluation reports from SOS Phase I¹⁸⁰. In general, I felt communities appreciated the SOS programme, even if many did not understand, or had forgotten, the main objectives. One of the biggest challenges to long term impact remains the lack of post-intervention follow up¹⁸¹: notwithstanding the fact that the August 2010 blood results were yet to be disseminated to communities, by July 2011 the “prophylactic period” of trypanocide cover was at its tail end, and I worried if community-based spray regimes did not get started soon, a re-treatment campaign would have to be initiated. An informant familiar with the long-standing HAT activities in the area expressed concern that some areas already required re-treatment, based on recent HAT cases appearing at Serere Hospital;

“Oburin and Katete are very bad, I don’t know how much sensitisation went on, if any, as farmers are not spraying their cows, I fear the whole side of the Oburin parish has been missed out”. (Interview Serere Health Facility, July 2011).

When questioned, the 3V veterinarian in Serere had not heard of the Oburin cases, two of which were from the same village. It appeared that despite the proximity of the 3V veterinary shop to Serere Hospital¹⁸²; there had never been contact between the 3V vet and the hospital. Ideally, veterinarians in HAT endemic areas should have

¹⁷⁹ Anon. (2011)

¹⁸⁰ See for example Butcher (2009), Morton (2010)

¹⁸¹ An SOS Phase I evaluation assessment recommended “High awareness levels on treatment and spraying needs to be enhanced through the provision of adequate information that is continuous in order to maintain and strengthen repeated practices” (Butcher 2009b).

¹⁸² Probably less than 100 metres

an awareness of where human patients are coming from, using the information prevent disease and simultaneously boost their own profits.

In conclusion, despite most participants knowing “nagana” in cattle, it appears the SOS Phase II campaign has struggled to alter current knowledge and risk perception surrounding HAT. The majority of participants maintained a poor understanding of what HAT is, or how it spread, with one man lamenting “*if we don’t know the symptoms how do we know we have it?*” In terms of risk perception, the most powerful mobilising tool appears to be known patients in the same areas. For example, a number of individuals in Tubur subcounty (close to the Kaberamaido border) knew of HAT patients being treated in Serere hospital. Similarly, informants in Idupa village (Olio subcounty close to the Serere treatment centre) had witnessed two cases of HAT in 2009, and were worried about the disease. In Asuret I was told about a current patient in Serere hospital¹⁸³, and that two people had previously died of HAT before the SOS programme started. Despite this small number of people in Soroti and Serere Districts with knowledge about what HAT actually was, few, if any, understood the role of the cattle reservoir.

An independent SOS Phase I evaluation concluded “Greater understanding by cattle keepers of the aims of the campaign would have helped lay foundations for future interventions under SOS, and helped farmers to make future treatment decisions based on sound information” (Butcher 2009b). It seems this opportunity was again missed in SOS phase II, despite a greater period of planning being available (in

¹⁸³ Verified by my field notes on a visit to the hospital the previous week

contrast to the “emergency” campaign of SOS I). Possibly greater mentorship of students within the MINTRACS model, in addition to more active participation from the government and/or the private sector, could ensure sustainability of HAT control once the donors have left¹⁸⁴. This is particularly important in areas with fewer human cases, where community mobilisation for prevention may be more difficult.

Perhaps the most important lesson to be learned from speaking with communities in the SOS Phase two target areas is that in terms of neglected zoonoses, the disparity between progress towards the “essential” illnesses such as rabies (which has its own Act within the MAAIF), compared to the “less dramatic” endemic diseases such as brucellosis, HAT and cysticercosis, can be strongly related to public awareness and risk perception of disease. This aspect should be remembered in future efforts to control disease in the absence of government enforcement of policy through national platforms, or where policy does not exist in the first place;

“Depending on the importance to the public, government becomes more sensitive to certain (issues) and moves it through faster. But when it is not of significant public interest, then it can take you on the shelf for a long time, people just taking their time”. (Interview UMoH June 2011).

Another informant lamented *“People need to die before the money comes in”*

4.5 Intersectoral Collaboration in Uganda for Zoonotic Disease Control

¹⁸⁴ Although on paper the Government of Uganda (COCTU) was a stakeholder in the SOS campaign, its active role in community sensitisation and other public goods, particularly in the long term, appears to be unclear.

4.5.1 Interministerial Collaboration at the Central Government Level

Interviews with government representatives revealed relatively strong, if informal, linkages existed between the Ugandan Ministries of Health and Agriculture. Uganda is one of the few countries in east Africa that established a Veterinary Public Health division within the central Ministry of Health in response to a 1996 WHO request, and this, along with several high profile zoonotic disease cases¹⁸⁵, has “made it easier” for the health and veterinary departments to join forces when required. As found in Nigeria, the international response to HPAI became an important yardstick for inter-disciplinary co-operation in Uganda; however government officials were fast to point out that inter-ministerial co-operation has always been externally funded. One high level MAAIF official explained the reason Ugandan ministries worked well together was due to long term working relationships and trust between individuals:

“It’s basically the people. Like the politics comes in later – ministries mainly operate as separate entities, so the thing you do is form a taskforce, you ask for money for this taskforce, and the different players contribute, so it’s no longer a Ministry of Health issue , or an agriculture issue, it surpasses this”. (Interview MAAIF June 2011).

When asked whether a *permanent* inter-ministerial platform for zoonoses control would eventuate in Uganda, the reply indicated that the backbone of a national taskforce already exists in the country. This “*largely permanent*” arrangement that meets on a regular basis, changing its make-up according to the disease outbreak and the expertise required to control it. To date, this taskforce remains a merely technical

¹⁸⁵ Including Marburg Haemorrhagic Virus which killed a Dutch tourist in 2008, Ebola epidemics, and the periodic deaths of hippos in Queen Elizabeth National Park due to anthrax

structure controlled at the ministerial level¹⁸⁶; currently co-chaired by the Commissioner of Livestock and a representative from the Ministry of Health. Although it sits “outside” of the ministries, it appears that in the event of an outbreak, financial and political support is garnered through its association with the office of the Prime Minister in charge of disaster management:

“We leave it at the technical level most of the time for co-operation, when something big comes then we take it up. The beauty is that the office of the Prime Minister is also in charge of disaster management, so when you have an outbreak like anthrax, you can treat it as a zoonosis as well as a disaster, so that we don’t have to really now chase things up and down”. (Interview MAAIF July 2010)

Others however, feel that in the absence of a “specific challenge”, the task forces collapse. Despite their ability to become rapidly resurrected based largely on good personal relationships, for the low profile endemic zoonoses this does not offer much hope:

“When we are in the same room everybody sees the benefit of all these (One Health) initiatives. The problem is that all these initiatives are set up based on a specific challenge. That is why you hear them being called “taskforces”; they address a specific outbreak of this and the other. The challenge comes after the problem is reduced to a manageable level or removed, then the issues of funding this task force comes into play. And once the funding component is removed, it is very difficult for each of these ministries to budget for this taskforce because it belongs to no ministry. Until again another donor comes in to budget for it.”(Interview UMoH June 2011).

To overcome the sustainability issues, in July 2011 there was talk of MAAIF joining with the Ministry of Health to establish a permanent, politically endorsed inter-ministerial body that deals with all zoonotic diseases, essentially a formal “One

¹⁸⁶ As opposed to a political structure endorsed by the president and controlled by legislation passed by Cabinet

Health” government platform. The main constraint is that under Ugandan law, a permanent collaboration must be housed within a single ministry “*If you don’t want it to get confusion of funding it needs to have a home*” (Interview Makerere University July 2011). One academic informant felt that the closest thing to a permanent One Health platform has already occurred with the aforementioned VPH department within the MoH;

“The Ministry of Health did it beautifully, they invited a vet to come and manage the department concerned with zoonoses. So instead of making this body, this department is supposed to be expanding and it gets endorsement as a department, and then it has a budget line in the Ministry of Finance but now they are creating another body which is like a taskforce”. (Interview Makerere July 2011).

4.5.2 Interministerial Collaboration at the District and Local Government Levels

When questioned on existing platforms for zoonotic disease control at the lower tiers of government, the ubiquitous HPAI district level taskforce for outbreak responses was mentioned, again cited as being “non-operational” as a case of HPAI has not been detected in Uganda. This invited criticism of the external agencies that money is put forwards for a disease which is not present, despite many other problems in the area in terms of zoonotic diseases;

“The (HPAI) workshop was just about bird flu, we didn’t have the opportunity to talk about other diseases. But I think it is important to get a forum there for all those diseases that are of our own interest”. (Interview MAAIF August 2010)

The lack of sustainability of externally driven ventures is evident, as one DVO explained of Uganda’s FAO-driven response to H5N1;

“Since we met that day, there’s no more meetings. Even we made a rapid response plan for the district, but since then nothing has been done” (Interview MAAIF August 2010)

Despite a certain level of inter-sectoral collaboration at the central government level, discussions with informants in the lower levels of government felt that a “very big gap” still existed between the disciplines;

“Especially like sleeping sickness, there’s a very big gap. See the health people are saying that it’s the work of the vets, but the vets are also saying that sleeping sickness is the work of the health people. So, there is some gap there, there’s nobody who is really sensitising the farmers as to who’s at risk of the problem.” (Interview MAAIF August 2010).

Outside of HPAI, there was little awareness of the existence of inter-ministerial platforms. Another district level veterinarian quoted the previously described “outdated” Public Health Act as the policy for zoonotic disease control at the district level, however this Act focuses mainly on meat inspection which, whilst important, will not cover transmission and prevention of all zoonoses, for example rabies. When asked whether there could be a place at the local government level for a joint approach for zoonotic disease surveillance and control; at least for the “public goods” aspects such as sensitisation and other extension services, the response from the local level was positive, however indicated it may be some time before change is seen:

“Yes, a special programme which addresses zoonoses, I think this would be fair. Because our lives are just surviving on God’s grace. There is no preparedness - that is our scenario here. We work out things when there is crisis.” (Interview MAAIF August 2010).

4.5.3 “One Health by Accident”: The Co-ordinating Office for the Control of Trypanosomiasis in Uganda (COCTU)

Box 6: COCTU Vision, Mission and Mandate

VISION

Healthy and prosperous people in a Uganda free from tsetse and trypanosomiasis with highly productive agricultural sector that ensures improved quality and increased quantity of food for all people and good returns on investment.

MISSION

To create tsetse free zones and eliminate sleeping sickness and Nagana in Uganda

MANDATE

The Uganda Trypanosomiasis Control Council (UTCC) with its secretariat, the Coordinating Office for Control of Trypanosomiasis in Uganda (COCTU) is mandated to formulate policies, guidelines and to ensure that tsetse and trypanosomiasis control and research is carried out in accordance with statute 16 of 8th October 1992.

The Co-ordinating Office for the Control of Trypanosomiasis in Uganda (COCTU) is the Secretariat of the Ugandan Trypanosomiasis Control Council (UTCC), formed by a parliamentary Act (Statute 16) on the 8th of October 1992. This permanently funded inter-ministerial platform is mandated to co-ordinate policy for all stakeholders involved in tsetse and trypanosomiasis control in Uganda, as set out in the Vision, Mission and Mandate statements in Box 6 as described by Uganda's Ministry of

Agriculture Animal Industries and Fisheries (MAAIF)¹⁸⁷: According to MAAIF, COCTU has several objectives under their role as the secretariat to the UTCC, including to ensure general co-ordination between the various Trypanosomiasis actors in the country, and overseeing project monitoring, outputs and communication of results to local, national and international stakeholders. COCTU is also mandated with a major role in the formation and implementation of policies concerning Trypanosomiasis, ensuring adequate human and financial resources are available for their enforcement.

COCTU sits within the Ministry of Agriculture and is possibly the earliest, if only, example of a “true” One Health initiative in Africa; formed long before the term “One Health” had become fashionable. The basis for the formation of COCTU lay in the disaggregated “vertical” approach to control of the ongoing issue of zoonotic HAT in the south east of the country. As more and more actors (and donor money) became involved during the 1980’s (coinciding with a major *rhodesiense* epidemic in the late 1980’s around the Busoga region) it became obvious a more co-ordinated approach was required:

“Prior to (COCTU’s formation) there existed very many players in T&T.....no-one knew what was happening in the other sphere. The 1988 epidemic rapidly brought down cases by 1990 because vets, medics, vector control and researchers were all in the same area using known amounts of money. It was very controlled and co-ordinated. After this, it was agreed that whenever these things happen we should not use a single intervention” (Interview COCTU July 2011).

¹⁸⁷ From <http://www.agriculture.go.ug/index.php?page=bodies&id=104>

The joint intervention of the early 1990's depicted COCTU as a "good arrangement" that should be institutionalised. A law was subsequently passed in 1992 for the formation of the Ugandan Trypanosomiasis Control Council (UTCC), with COCTU as its secretariat. The UTCC Board is composed of various ministerial and international representatives¹⁸⁸ with the private sector providing animal drugs and the WHO providing HAT drugs free of charge. Ministries absent at the time of UTCC formation will send a representative if necessary, and the office of the Prime Minister is responsible for overall co-ordination. Since its formation, MAAIF and the Ministry of Health have been the two main stakeholders, down to the local government level. The National Agricultural Research Organisation (NARO) was the main research partner involved, however Makerere's Faculty of Veterinary Medicine (FVM) has been actively working with Edinburgh University to identify and answer research questions. When asked where the decision came from to sit COCTU within the MAAIF, the Deputy Director was not sure, but felt those spear-heading HAT control at the time were mainly in the MAAIF, although ownership and joint ministerial funding were certainly problematic within the structure.

4.5.4 Weaknesses in the Current COCTU Structure

Despite the potential for COCTU to become a "beacon of One Health" in Africa, there are several challenges with the institution in its present form. Some feel COCTU needs to be more dynamic, claiming it has "*missed an opportunity*" to better

¹⁸⁸ Including: MAAIF, MoH, Ministry of Finance, Planning and Economic Development, Ministry of Tourism, Trade and Industry, Ministry of Local Government, Ministry of Land, Water and Environment and International Organisations such as FAO, WHO, PATTEC and ILRI. (MAAIF 2012)

co-ordinate field activities between the various stakeholders involved in T&T control. An example was given of a recent HAT outbreak in Apac district that was left “hanging” as no-one knew where the money to fund an intervention should come from (Interview MoH July 2011). By the time the District Health Officers “*stormed into Kampala and demanded something be done*”, there were twelve HAT patients and further deaths reported in the community (Interview UMoH July 2011). It is felt that in such circumstances, COCTU should take a lead role.

Examples such as this imply roles and responsibilities, particularly in terms of financial resource allocation, have become blurred, with MAAIF questioning what the MoH is doing, and vice versa. As COCTU is “owned” by MAAIF, all budget lines for the secretariat go through there by law. However COCTU representatives feel there is a tendency for other ministries to under-budget activities related to their component, expecting MAAIF will cover the deficit (Interview COCTU July 2011). Conversely, MAAIF only budgets for activities under the mandate of the secretariat, leading the MoH to question where funding for vector control and interventions for the animal reservoir should come from;

“(MAAIF) are taking advantage of the structural weaknesses in COCTU, they need to renew this structure and funding - with a good functioning platform, the Ministry of Health will not question what MAAIF are doing”. (Interview UMoH July 2011).

Upon my visit to the COCTU offices in July 2011 they were empty of staff; I was told the Director was on “extended leave” and had not turned up to the office for “months”¹⁸⁹. One government official observed;

¹⁸⁹ COCTU Director Lawrence Semakula declined my request for an interview

“(COCTU) looks like a sanctuary for retired people without a drive for research, review, monitoring....it should be a vibrant body...the people who envisaged COCTU had a good vision but lacked structure”. (Interview UMoH July 2011).

Others are openly frustrated with COCTU’s lack of action, citing for example a T&T policy which had been in development since 2002 and was still not finalised; *“this policy needs to be finalised by COCTU, but COCTU is two people, they keep on meeting over it but nothing is moving forwards”*(Interview UMoH June 2011).

It seemed COCTU’s credibility was being eroded due to the prioritisation of internal issues such as salaries and finance at quarterly meetings, rather than the policy and advisory role they are supposed to play. When I questioned a MoH informant whether COCTU would function any better there, the answer was surprisingly honest, leading me to believe that the criticisms of COCTU in its current state were genuine, and not merely a case of political jealousy: *“Wherever it is housed, it must be well managed, not beauracratic. If it sits in the Ministry of Health it will have the same problems with day to day running”.* (Interview UMoH July 2011).

When questioned as to these criticisms, the COCTU informant blamed the internal issues primarily on funding; *“COCTU has challenges when human cases fall; HAT decreases & so does the funding”* (Interview COCTU July 2011). When questioned further on what COCTU’s role should therefore be (and require funding for) outside an outbreak situation, many options necessary for long term control were outlined;

“(COCTU) still has a lot to tell people, to sensitise them to the benefits of T&T control. When you tell someone their healthy looking animal is sick, you need a lot of conviction and a good rapport with farmers, especially in an

area with low literacy....if people are not sensitised enough they will not pay and the intervention won't work.” (Interview COCTU July 2011).

4.5.5 Expansion of COCTU's Mandate to become a One Health Platform

Overall, various informants felt the way HAT control in Uganda has been co-ordinated is potentially a “good springboard” for control of other zoonoses under the One Health approach. As one official observed;

“A well functioning COCTU could act as a warehouse for all things concerning zoonoses: data management, consultations, expert meetings, inventory of manpower, control measures. It would be a good idea to have a strategy for a structure like COCTU in all the HAT countries across Africa – as a policy and endorsed by governments – to help co-ordinate even beyond sleeping sickness to encompass zoonotic diseases”. (Interview UMoH July 2011).

The COCTU Deputy Director also agreed *“It's true that COCTU is an important “one stop” centre that various stakeholders are able to form a taskforce from more quickly than if you were starting from nothing”*. The idea of expanding COCTU into a generalised platform to address other zoonotic diseases in Uganda has already been discussed between MAAIF and the Ministry of Health. On a certain level, the political support for this is there, but as one informant explained, changing the mandate of COCTU from a single disease to multiple diseases will take time as it involves restructuring budgets, personnel and policy. The advantage however, is that COCTU is already legally endorsed by the Office of the Prime Minister, and regardless of its structural shortcomings, is already embedded within the political framework. Such proposals should take advantage of the One Health momentum

currently being generated; the enthusiasm for COCTU's expansion may drop "*if you don't push your case within the relevant ministries*" (Interview UMoH July 2011). This is particularly relevant amidst calls by some in the UMoH that "*treating the animal reservoir doesn't work, we need to go back to a vertical approach*" (Interview UMoH July 2011).

4.6 Disease Spread as a result of Poor Implementation of National Policy

The problem experienced to date with HAT in the country is symbolic of wider national policy issues in Uganda, particularly surrounding prioritisation and control of livestock disease in the country. Throughout the course of this research, I held many discussions with government officials into the reasons for lack of policy, or poor enforcement of existing disease control policies in Uganda, given that this aspect forms an important narrative in the SOS case study. Several solid examples in the area of zoonotic disease control were observed, discussed herein.

4.6.1 Meat Inspection at Abattoirs

Control of food borne zoonoses is assumed to occur through implementation of the Animal Disease Act, along with various policies on meat hygiene and abattoir inspection such as the Veterinary Public Health Act, both of which are outdated and failing as a result of poor implementation. Ugandan abattoirs currently operate within a "messy" framework; premises and responsibility for meat inspection is under the control of the Ministry of Local Governments, but they are privately run in terms of

day to day operations. Local government authorities tender renewable contracts for abattoir management to the public; those that win the tenders then “lease” the premises from the government, which they recover by charging a fee to the animal owners for each animal slaughtered. Interestingly, MAAIF does not feature in this structure and cannot infiltrate this arrangement; *“I can’t hire and fire”* (Interview MAAIF June 2011). Cabinet has recently passed a resolution to bring the whole system back under central government control. This would help improve standards towards the OIE recommendations, and also enable cohesive national surveillance and control programmes to be carried out which are difficult under the current structure.

A MAAIF informant conceded that the current risk of community exposure to unsafe meat products remained high, blaming in part the poor abattoir system across the country. There is no compensation policy in Uganda, so whether a carcass is condemned depends on the vigilance of the meat inspector; *“Most slaughterers are very experienced and know when something looks “bad”, so they quickly hide it away in the food chain before the inspector sees it”* (Interview MAAIF June 2011). More importantly, the person who slaughter animals are mostly employed on a casual labour basis; whoever “turns up in the morning” is given a job. They are paid in kind¹⁹⁰; therefore if an animal is condemned, they lose their cut.

In addition to abattoir control being brought back under central government control, the MAAIF Assistant Commissioner for Livestock Disease Control would “love” to

¹⁹⁰ This tradition runs deep in African culture, for example beasts slaughtered for funerals – the person who kills an animal always takes some of the cut, even if money is also paid

see animal slaughterers on agreed long term contracts (Interview MAAIF June 2011). In this way, those slaughtering the animals would not be “personally involved” with the slaughter, and therefore more inclined to comply with meat inspection laws¹⁹¹. Coupled with compensation for condemned carcasses, this would guarantee greater efficacy of the meat inspection processes and improve the quality entering the food chain.

4.6.2 Pre-movement Treatment of Animals

This is particularly pertinent to the Uganda case study, as improper adherence to policy guidelines demanding the pre-movement delivery of a trypanocidal drug to cattle in *rhodesiense*-endemic areas before moving them to a new area has been largely attributed to the northwards spread of human african trypanosomiasis (Fèvre *et al* 2001, Welburn *et al* 2006, Picozzi *et al* 2005). The SOS campaign underlined the importance of adherence to existing policy surrounding movement control and treatment of animals sold in market places (Morton 2010). It appears that field observations, in addition to farmer experiences, support recently published concerns that “(policy) implementation continues to be very patchy, and it appears some traders and even some NGOs wholly bypass controls” (Morton 2010) .

When asked whether they have witnessed government veterinarians treating animals at the market places, the majority of farmers indicated this was done “*from time to time*”. Most said they had to pay for treatment (1000 to 5000 US\$) and they received certificates; “*there is a doctor there, after you buy the cow, they tell us that they are*

¹⁹¹ This would also go some way to vastly improving animal welfare in slaughterhouses; whoever “turns up on the day” will unlikely be trained for humane slaughter

treating for a certain disease, and it is a must; we cannot go without them treating our cow, it is under order". When probed, few individuals knew what treatment their animals were receiving, justifying their lack of knowledge as *"the government vets are trying to reduce the diseases, they themselves know what they are treating for"*. Although this may be true to some extent, the lack of community sensitisation is an issue: if farmers are not aware of the relationship between their cattle and *T b rhodesiense* transmission, they will not see the importance for continuous post-treatment spraying, and therefore risk contracting the disease if their cattle are in endemic areas.

There was also variance in reports of the efficacy of government treatment; some in Budekea market indicated *"treatment occurred long ago but not now, not seen anything past few years"*, whilst others indicated the markets at Tubur and Katine have strict protocols. Farmers in some areas were suspicious of government veterinarians under-dosing *"as the dose is very small"*. A farmer on the Kaberamaido-Soroti border explained how he pays US\$5000 for treatment with Samorin®; when I asked the amount of drug given, he replied *"it is not a full syringe – maybe one or two ml"*. My clinical experience of Samorin®, triangulated with information from farmers and a local private veterinarian, means I am wary that under-dosing or diluting of these drugs is occurring in some areas. Correctly constituted, cattle should receive either 1.25ml/50kg for a curative (1%) dose of Samorin®, or 2.5ml/50kg for a prophylactic (2%) dose. Assuming from experience an average weight of 200kg, cattle should receive *at least* a 5ml dosage of Samorin®,

10ml if the intention is 3 months prophylaxis. In short, no correctly-constituted trypanocidal drug should be administered as a “vaccine” of 1-2ml¹⁹².

4.6.3 Prioritisation of Quarantine Measures

Whilst undertaking my second round of fieldwork in July 2011, Soroti and Serere were experiencing a three month FMD quarantine which had effectively shut down all livestock trading. Brooke’s Corner and Arapai markets were silent; indicating quarantine was well enforced (field observations). Despite the reasons for quarantine being largely understood and respected by farmers, it was evidently placing a strain on livelihoods in the area; accounts of meagre farmer cash flows were echoed by a private veterinarian in the district:

“(the quarantine) has been devastating for families and this time it has collided with going back to school – parents have no money for school fees or books, and this has been reflected in the low school attendance” (Interview private veterinary sector Serere June 2011).

Some farmers explained how the lack of available animals for dowry has effectively ceased marriages in the district: *“nobody is getting married, we have been told to hold off the marriage until the quarantine lifts”* (FGD Soroti District July 2011).

The government’s “hard line” taken to control FMD, which ultimately has little effect on poorly producing animals, is puzzling. When compared to accounts in the

¹⁹² One (veterinary) informant has witnessed government veterinarians administering 1ml doses of Veriben® and Samorin® to cattle in Kaberamaido and Palissa markets, telling farmers it’s a “vaccination”. When asked whether something was said about this breach of protocol, the reply was “I would be risking my life”.

previous section of “careless” administration of trypanocidal drugs at market places, and the lack of quarantine which introduced brucellosis into Soroti district from South African goats (see next section), one does have to question the “hit and miss” adherence to disease control policies in the country.

If movement policy can be so easily enforced for a disease such as FMD¹⁹³, arguably causing greater socioeconomic pressure to the district than the disease itself, why is policy not enforced for fatal diseases such as HAT? The scientific evidence verifies the requirement for cattle treatment at markets, and government technocrats appear aware of the transmission; so where is the bottleneck? Is it truly a problem of ministerial advocacy, and if so, where? Or is it simply that the rural public are not adequately sensitised towards the “neglected” zoonoses, and therefore do not place sufficient pressure on the government to prevent it? Similar “all or nothing” approaches to the control of poultry populations in south east Asia were seen following H5N1 diagnosis, leading me to question whether the Ugandan government’s heavy-handed approach to FMD control could possibly be due to dominant “pro-eradication” policy narratives coming down from the OIE. Such disease control approaches have been deemed “very much ‘first world’”, in that “hordes of white suited professional vets” expect implementation of disease control policies which are unrealistic and inappropriate to the local situation (Undisclosed informant, quoted in Scoones 2010). One MAAIF official supported this theory:

¹⁹³ Outside movement restriction, it appears attempts to control the FMD outbreak were insufficient; one veterinarian criticised the administration of the concurrent ring vaccination plan, saying it failed to stop progress of FMD “*the government does only token gestures; there’s never enough money to do a job properly*”.

“FMD is not a killer disease, but do you see how much the governments spend on procuring vaccines? Even if FMD came to your farm it will die out eventually – but you find they are willing to finance that one, simply because of this crazy thing of international markets, yet (the farmers) don’t access these international markets. These are the realities – you are busy spending so much money on those diseases (rather) than controlling those that are impeding production in your own region.” (Interview MAAIF June 2011).

Disease spread as a result of non-compliance with disease control policies may not only be due to systemic causes within the country. There are several accounts in the literature of HAT spread in Uganda as a result of dismissive attitudes of both NGOs and government in cattle restocking programmes into districts such as Soroti and Serere (Picozzi *et al* 2005, Fèvre *et al* 2001). Another severe lack of adherence to quarantine laws has been strongly felt in Serere and Soroti Districts, where brucellosis was recently introduced by infected Boer goats from South Africa as part of another government restocking programme. These “improved” species of goats caused abortion storms when they were introduced to the district; one veterinary officer described his frustration in such situations;

“When they brought these goats from South Africa I was in Entebbe doing a short course, I saw them there when they arrived. Actually we told (MAAIF officials) those goats were infected with brucellosis but the politicians refused - when we started making noise (the politicians) came with the farmers and took the goats – when the politicians get involved, sometimes we have no power.” (Interview MAAIF August 2010).

This is a perfect example of the technocratic frustrations discussed in section 4.2; a veterinarian knows that keeping an animal in “passive” quarantine for six weeks is not going to detect brucellosis, however bridging this gap between science and policy to make the “administrators” of policy (politicians) understand the intricacies of animal health is the challenge.

4.7 Sharing of National Ministerial Resources: What would One Health success look like?

The final part of this chapter explores a number of ministerial opinions as to what a successful Ugandan One Health collaboration would look like. When this question was put to interviewees, common responses surrounded mutual professional respect between the health and veterinary disciplines¹⁹⁴, and endorsement of the concept by the country's leadership;

“The first thing is to make the concept appreciated by the leadership of a country; you know that if they accept it as an institutional establishment, a department, (it) means you have recognised that there is a problem”. (Interview Makerere July 2011).

One informant used a recent example to explain the institutional and professional barriers which exist within the ministries;

“There are always people who struggle for “total” control – there has been an issue to reform the national drug authority, housed in the Ministry of Health. Now if they transform it into the National FOOD and drug authority, where is it supposed be? Agriculture, but health is insisting it should be in health. So already there is a fight”. (Interview MAAIF June 2011).

An official at the MAAIF agreed there was a long way to go before disciplinary barriers were weakened in the country;

“Even at the national level in parliament when you are from the animal sector and you reason that we must control the disease in the human beings, they may think you have not understood the way government runs” (Interview Makerere July 2011).

¹⁹⁴ One informant complained how, on a recent visit to Serere, the Minister of Health “was busy blaming ‘these vets are not doing their work’ and so on, but your One Health it is not the time for that! It was the time to talk and say ‘how can we work together, how can the Ministry of Health help?’” (Interview Makerere July 2011)

Another MAAIF official agreed;

“Immediately you go to the Ministry of Health and you say OK can we budget for animal spraying, they will think you are crazy. But actually when you spray the animals your target is to protect the human beings. It has nothing to do with the animals. Until I see the Ministry of Health putting a budget line to control this vector which is presumed to be more of a risk to the people than the animal, that’s when I will believe (in One Health).” (Interview UMoH June 2011).

This is an interesting point: when I asked various Ministry of Health officials whether they would ever spend money treating the animal reservoir, their first response was laughter *“even at an accounting or Ministry of Finance level you would currently have problems justifying it, accounting would not allow it”* (Interview MoH June 2011). However, when further questioned, it seems that an institutional shift in thinking may occur in time, provided the *economic* evidence was there. To demonstrate this, I questioned a UMoH official on how much a single case of human rabies costs the Ministry of Health. He replied that a full course (3 doses) of human rabies Post Exposure Prophylaxis (PEP) is 120 000 USH¹⁹⁵. For this, you could vaccinate around 150 dogs, thus saving money to the Ministry if even just one case of human rabies was spared. Officials agreed this is the type of case you would have to make to convince the Health Minister, however it would take some time

“especially with the (people) at the top - most are old and get there by working up through the system, so are slow to change as they still have ideas from 30 years ago.” (Interview UMoH June 2011)

Another respondent indicated that as discussed previously, a body such as COCTU could be used for such advocacy in the case of HAT, for example convincing the

¹⁹⁵ Around about \$50 USD at June 2011 exchange rates

Ministry of Health to purchase Vectocid®, “*but the way it is now it can’t do anything, no-one takes them seriously*” (Interview UMoH July 2011).

Finally, another informant thought that a successful One Health platform would be something that was owned by Ugandans, and not driven by external funding;

“There are many more problems that worry people in Uganda than avian influenza. If we wanted to kick off One Health here, you promote it as something to benefit people - the real test comes when you get part of your taxpayers’ money to fund it”. (Interview Makerere July 2011).

The notion of using taxpayers’ money, rather than donor funds, to support a disease control programme is valid. Countries cannot say no to external funding for a particular issue; as was seen in the HPAI response in Uganda, the problem was arguably there, it just wasn’t the biggest problem.

4.8 Conclusion

COCTU is an important example of a functional, legally endorsed inter-ministerial platform which was formed in response to a severe zoonotic disease at the end of the 1980’s. Taking this as an example, in light of the various “taskforces” which also exist in the country for outbreak situations, I have tried to examine the original proposition for this empirical chapter:

“Politically endorsed national One Health structures help ensure successful, sustained functioning of less formal collaborations”

This conclusion aims to tie together the various themes in this chapter surrounding disease prioritisation, inter-ministerial co-operation and policy enforcement within Uganda's national government framework, looking at how One Health approaches could be used to address the issues of endemic disease facing the country. Through examining the long history of a One Health approach to Trypanosomiasis control in the country, in light of the various policy approaches to more recent "crises" such as Marburg, anthrax and FMD, I concluded that sustainable One Health interventions emerge from good working relationships and strong political support.

It appears the level of political prioritisation of disease – and the corresponding political commitment to its control – revolves strongly around public perception of its impact. As an interviewee stated, money can always be found within governments for diseases which threaten economies or cast a poor picture in the eyes of the international public. Even without external funding, some feel that resources can always be secured for zoonoses that negatively affect the tourism industry or other aspects of the national economy, but as long as neglected zoonoses remain in the rural areas, *"everyone will keep quiet"*. As one informant wryly explained;

"Trypanosomiasis will continue not to attract much attention of both national government and probably the international agenda - as long as people don't get infected when they go to the national park". (Interview Makerere July 2011)

It seems the "dramatic" zoonoses will continue to attract attention for some time, unless good prevalence data can sway the policy process towards long term approaches to the control of endemic zoonoses, given the real value of One Health in

developing countries potentially lies with control of the “silent” diseases such as HAT and brucellosis. My research in Uganda concludes that bodies such as COCTU, or any corresponding legally endorsed One Health platform, have a real opportunity to provide the political pressure to overcome such issues. Nevertheless a major message to be taken away is that in the majority of cases, One Health will not “just happen”, and its efficacy will be diluted if an externally driven, permanent platform is set up without due adherence to basic national structures, and ownership by those expected to implement the policies.

CHAPTER FIVE:

AFTER THE CRISIS: SUSTAINING “ONE HEALTH” MOMENTUM IN POST-HPAI NIGERIA

“The evolution of One Health from the ‘emergency to the everyday’ necessitates integration of local perspectives”

5.1 Introduction to the “Custodians” Of Nigeria’s Cattle Herds¹⁹⁶

“How to reconcile modernism with traditionalism, consumption with production, needs with expectations, land use with land conservation, and policy formulation with policy implementation?”

Iro 2001

The Nigerian Fulani account for almost one third of Africa’s 30 million pastoralists. Despite this, their ever-changing status¹⁹⁷ indicates they fall victim to the fate of many pastoralist societies across Africa which “represent complex but poorly analysed systems, tending to be denigrated by policy-makers and romanticized by novelists” (Nori *et al*, 2006). However, the potential contribution of the Fulani to national food security and economic growth in Nigeria should not be underestimated; the livestock sub-sector accounts for one third of the annual agriculture Gross Domestic Product (GDP), with the Fulani contributing to over 90% of this (Fabusoro

¹⁹⁶ As described by Fabusoro (2007)

¹⁹⁷ From perceived “favouritism” by the British during the colonial era, to shouldering the blame for an underperforming livestock sector by contemporary government regimes

2007). Nigerians, particularly those in the “consumer south” depend on the Fulani livestock “holding states” in the north for a variety of animal products including meat, milk, manure, skins, cheese, honey and draught power. Thousands of Nigerians make a living from the sale, transport, butchering and marketing of Fulani products every day; in Abuja alone 4000 goats and 400 cattle are slaughtered daily, with 1500 cattle a day slaughtered in Lagos (personal communication). There is a huge potential for the Fulani, particularly from the grazing reserves, to supply meat and animal products to Nigeria and across West Africa. Despite this, Nigeria’s Fulani continue to be “amongst the most neglected” of Nigeria’s ethnic groups today (Iro 2001). Although various attempts have been made by state and non-state actors to address issues such as land conflict, education and service provision, many remain of the sentiment that “every attempt to bring Nigeria’s Fulani into the fold of so-called progressive society has failed, leaving the Fulani at the mercy of the weather and faulty government actions that impoverish rather than promote the welfare of the pastoral producers.” (Iro 2001).

It is within this historical and political context that the empirical data collected during three field trips to Nigeria in 2010-2011 serves to explore the third and final proposition forwarded within this thesis that “*the evolution of One Health from the ‘emergency to the everyday necessitates integration of local perspectives’*”. Whilst this proposition may seem obvious to many, particularly those familiar with the participatory methodologies¹⁹⁸ now a common part of everyday development discourse, the reality is that building indigenous knowledge into wider government

¹⁹⁸ For example see Chambers (1983), Chambers *et al* (1989)

policy or decision making processes is at best difficult, at worst “provides more effective instruments with which to extend technocratic control or advance external interests and agendas whilst further concealing the agency of outsiders” (Mosse 2005).

5.1.1 Setting One Health in Motion: Nigeria's 2006 HPAI Outbreak

On the 6th of February 2006, Nigeria reported Africa's first case of HPAI in a commercial poultry farm in Kaduna state. The outbreak was initially suspected in early January, with laboratory analysis taking almost one month to confirm HPAI from an Asian lineage (EMPRES 2006). In the meantime, outbreaks were confirmed in Plateau, Kano and Bauchi states. The delay in disease confirmation left “ample opportunity” for colonisation of HPAI in other areas across the region, with fears that the disease may have originated in another country altogether and only been identified in Nigeria (EMPRES 2006).

Initial measures taken by Nigerian authorities to reduce the risk of spread included the mobilisation of rapid response teams to de-populate affected farms, enforcement of movement restrictions and awareness campaigns across the country. FAO and OIE took a lead supporting role in the initial stages, sending an envoy to Abuja and promoting collaboration with the WHO (EMPRES 2006). By March 2006, funding had been secured for a three year action plan; the “Nigeria Avian Influenza Emergency Control Preparedness and Respond Project” developed by the Nigeria ministries of Agriculture, Health and Information with input from a variety of stakeholders. The political and financial backing was unprecedented; “*the*

*government was giving money before they were even asked to*¹⁹⁹, with an alleged USD \$50 million credit received from the World Bank to commence activities. The project aimed to “minimise the threat of HPAI to both humans and the poultry industry through reducing the spread of disease, whilst promoting poultry production in the country” (Federal Republic of Nigeria 2006). The National Technical Committee on Avian Influenza (NTCAI) brought together stakeholders from both human and animal health, with provision for interministerial collaboration through joint workshops and creation of state and local positions such as desk officers. By all accounts, whilst the funding was available, successful containment of the disease occurred amidst inter-ministerial collaboration and compensation of poultry farmers. The remainder of this case study seeks to evaluate the activities that have occurred since the completion of the project in 2009, and where One Health is headed now the “crisis is over”.

Interviews conducted within the ministries of health and agriculture across all three tiers of government described the various levels of interaction which occurred during the HPAI crisis, some of which is ongoing despite project completion. In particular the joint workshops and training which occurred during this time were by all accounts positive; with health officials “opening their eyes” as to what vets could assist with in terms of PH and zoonotic disease control. Pressure from external agencies resulted in formation of the National Inter-Ministerial Committee on Avian Influenza, set up at the federal level for HPAI control under a formal presidential directive. Multi-disciplinary teams were developed from the Ministries of Health and

¹⁹⁹ Informant interview, Ministry of Agriculture March 2011

Agriculture in conjunction with the Ministry of Information, and included various technical advisors from both within and external to Nigeria. It was expected that the federal level set-up would be replicated at the state and local government levels, given the “decentralised and demand driven” nature of the project (Federal Republic of Nigeria 2006). Respondents were mixed in their views as to whether the state level technical committee existed at the time. Some indicated they were quite weak, but others indicated good progress was made, for example in Plateau State where collaboration was co-chaired by the commissioners for NMoH and NMoA, with technical input from various government departments, the Ministry of Communication, NVRI, WHO and the Jos University Teaching Hospital. If nothing else, the HPAI outbreak of 2006 resulted in reinvigoration of communication between the ministries of health and agriculture, at least at the federal level, which had been lacking in recent years; “*This HPAI it brought us close together and strengthened the bond*” (Interview NMoH March 2011).

5.1.2 Nigeria’s Government Structure

Nigeria has a federal set-up, consisting of 37 states divided into 774 Local Government Authorities (LGAs). Ministers head the various ministries at the Federal level, whilst Heads of Ministries at the State Level are termed Commissioners. Federal budgets feed into State budgets across all Ministries according to state populations. For issues such as national security, states do not have decision making power. However for items not on the *concurrent list* (including all activities under the Ministry of Agriculture), states have authority over policy decisions, including disease control. Traditional chiefs (community tribal leaders) have the highest level

of authority in each LGA; ministries are represented down to this level, however policies are directed and funded by state management. Funding to the different tiers of government is allocated through a formal process written into the Constitution, administered by the Financial Allocation Committee (FAC).

The majority of animal disease control acts are under state government law. Transboundary Animal Diseases (TADs) and Diseases of National Economic Importance (DNEI) are governed under federal law, with the States acting as implementers; in this way the federal government is able to co-ordinate control for diseases affecting many states. Vaccination programmes including Rinderpest, PPR and CBPP are driven by FAO/Nigerian government but not nearly as regularly as before Structural Adjustment (SAP). There are no “official” zoonotic disease control policies in Nigeria; these come under general disease control in the Ministry of Agriculture, with some addressed in the Ministry of Health’s Neglected Tropical Disease (NTD) policies. Funding, monitoring and implementation of animal disease control policies (including zoonoses) is the responsibility of the Federal Department of Livestock, seated within the Ministry of Agriculture. The Department of Livestock contains several “arms”, including animal health (control of animal disease), Veterinary Public Health (VPH) (zoonoses control, policy formation for VPH, abattoir management and other food safety issues), and the epidemiology unit responsible for disease surveillance and reporting across the country.

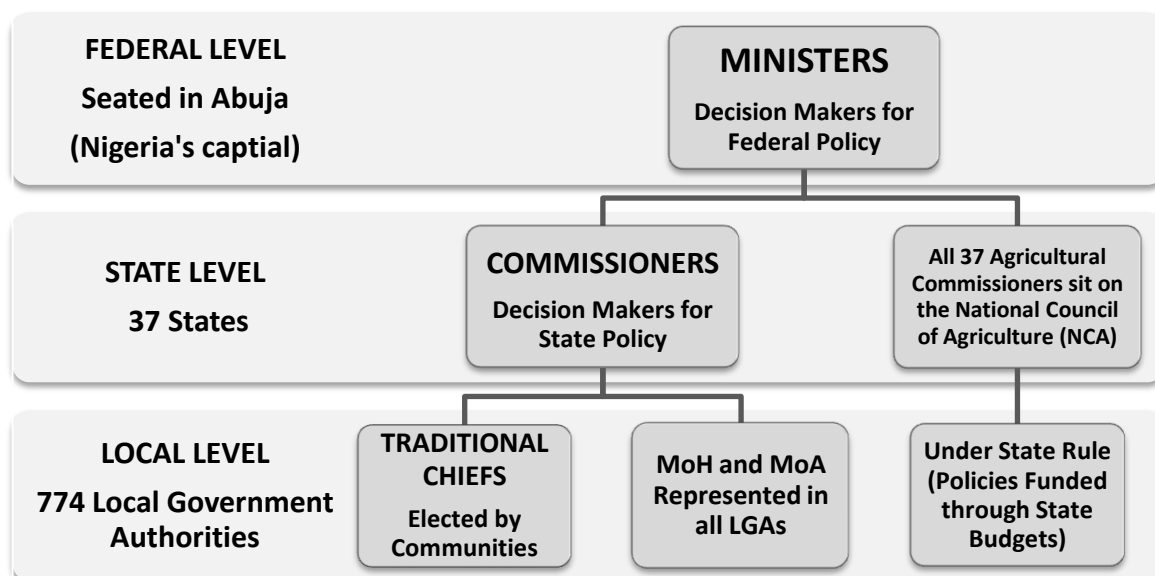


Figure 6: Nigerian Government Structure showing Key Decision Makers at each level

At the state level, livestock activities fall within the Division of Veterinary Services (DVS) under the Ministry of Agriculture (MoA); although some states have separate Livestock Development ministries. Local government offices should all have veterinary divisions, however these have collapsed in some LGAs; one informant complained “*LGA clinics are managed by incompetent people, such as agricultural production graduates, not vets, therefore clients become dissatisfied and don’t go*”(Interview, MoA June 2010). A similar picture exists within the Ministry of Health; desk officers supported by the Health Commissioner move around the LGAs to give support to local authorities, however time and financial restraints limit the frequency with which LGAs are visited. For both ministries, resource restrictions appear to dilute the support of both human and animal health at the community level.

5.1.3 Policy Process within the Ministries of Health and Agriculture

The National Council of Agriculture (NCA) is the uppermost platform in Nigeria for policy makers concerned with the agricultural sector (including livestock development and disease control); it is a body consisting of ministers, policy makers and state commissioners. The NCA is seated at the federal level, where technical researchers and policy advisors assist the heads of ministries to determine national agricultural policies, supposedly through an interactive process using information from the State level. The NCA meets annually around March every year; in 2011 it was the meeting place where I conducted a number of interviews with federal representatives of the livestock sector. Memos are presented to the NCA by various agricultural sector representatives (including those from livestock, fisheries and the environment) in a two-page format similar to a policy brief; explaining the background to the problem, the current situation in Nigeria, and a “prayer” of what is hoped will be endorsed by the NCA by the meeting conclusion. Memo presentations are short – usually only lasting five minutes as many are made. If the NCA agrees to support a proposed policy, its funding arrangements (through the FAC) and implementation process will appear in a legally binding NCA agreement; states *have* to carry out activities if passed by NCA and the memo appears in the communiqué.

For the livestock sector, memos presented to the NCA must first be approved by the National Livestock Development Council (NLDC), consisting of a committee

consisting of mostly veterinarians. The NLDC is subsequently responsible for submitting findings and policy recommendations to the NCA²⁰⁰.

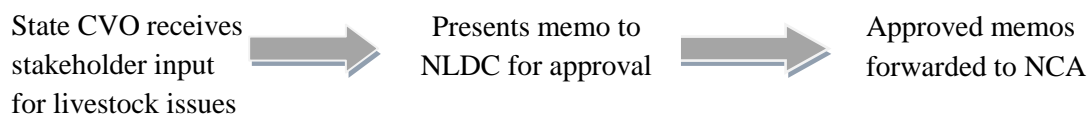


Figure 7: Policy Process in Nigeria’s Federal Ministry of Agriculture

Memos presented to the NLDC are presented by the state Chief Veterinary Officer (CVO), however can come from any stakeholder group concerned about a particular issue, for example farmer’s associations, veterinarians or the private sector. A recent example includes a memo advocating for policies on donkey welfare, drawn out of concerns of dwindling numbers available for work purposes as a result of their consumption in other states. Respondents also indicated that the Federal Ministry of Health is able to be represented at the NLDC and NCA for the purposes of memos involving inter-ministerial collaboration²⁰¹, however I ascertained this involvement at the policy level is at present “skeletal” at best, with dialogue around joint policy processes reflecting token appearances from the corresponding ministries rather than any concrete inputs and planning for policy funding and implementation.

“Policy for disease control is still trying to be streamlined. Contingency plans exist for high profile diseases such as HPAI and Rinderpest, however no official policies exist for control of zoonotic disease – “officially” Nigeria doesn’t have brucellosis in the country.” (Interview MoA March 2011)

²⁰⁰ Annex V contains the Communiqué of the March 17th 2011 NLDC meeting, where it can be seen the policy issues pertaining to the livestock sector which were accepted for presentation to the NAC on the 23rd of March 2011.

²⁰¹. Whilst I was in Nigeria, a memo was passed to present a case to the NCA to resuscitate the National Zoonosis Centre within the University of Ibadan, as well as calls for “Control of zoonotic diseases in the light of One World one Health initiative”

The higher human health policy making body in Nigeria is the National Council of Health (NCH), chaired by the Minister of Health. Depending on the particular issue, the Minister presents health issues to the Federal Executive Council for the final decision, however project or programme steering committees also exist that develop and adopt policy decisions on behalf of the Minister. For example, policy decisions for zoonotic diseases fall under the mandate of the Neglected Tropical Disease Steering Committee, formed by managers of the various NTD programmes within Nigeria's Ministry of Health, along with academic and international representation such as UNICEF. The NTD steering committee makes decisions and reviews issues on behalf of the health ministry, after which policy decisions are taken to the minister for adoption. Similar to the Ministry of Agriculture, within the Ministry of Health the basic policy process is formed according to a defined need:

“Policies are not really adopted and approved until the (Federal Executive Council) are convinced; there's a lot of research, a lot of enquiries are made, after which (issues) are presented of course from the lowest level to the state level and then to the federal for consideration”. (Interview NMoH March 2011)

However within this explanation, there appears to be a certain amount of leniency;

“We have to have good negotiating skills to convince the (policy makers at the federal level) that it's really a problem, especially with serious public health issues, before it gets worse. For example if there is a big outbreak, let's say what happened (with HAT) in Delta State, we requested support from WHO and FIND²⁰², and I endorsed it and communicated to the Minister - that's the policy really, that's how we do it” (Interview NMoH March 2011)

5.1.4 The Reality of the Policy Making Process in Nigeria

“The minister wants everyone together in the next one hour. He says no exceptions. Just jot down some points for him to talk about – this is a public private partnership,

²⁰² Foundation for Innovative New Diagnostics, started up by the Bill & Melinda Gates Foundation now with funding from a range of European development partners including DfID, EU and the Netherlands

the terrible state of abattoirs across the country - we need a list of points for him to discuss right now!"

Chief Veterinary Officer, NCA Meeting March 2011

The above quotation, captured at the conclusion of an interview with a Federal MoA official at the 2011 NCA meeting, shows perhaps the best evidence of the “political, incremental and haphazard²⁰³” realities of the policy making process in Nigeria, despite the official process outlined in the above section. The CVO came over to our table in an agitated state, demanding my interviewee get a memo summary together for presentation to the Minister for Agriculture in an hour’s time. This was at the annual NCA stakeholder meeting, where all the policy decisions for Nigeria’s agricultural sector in the coming years are decided, and is a good example of the difference between the structured, evidence-driven policy process that exists on paper, and the reality.

Throughout the course of my research, I was given numerous accounts of the “informal” processes of communication and policy development which exists within Nigerian ministries; as one high level official proudly informed me *“If I want to communicate to the Minister of Health, I can seek his office, and I mean if he’s free, he will see me because I am a director”*. (Interview NMoH March 2011). Particularly, technocrats at the lower government tiers cited frustrations with the current decision making and communication process;

“The problem I have here, if you bring your idea, you’re not really allowed to have that shot (at change); they are finding it hard to understand

²⁰³ From Keeley (2003), quoted in Wolmer & Scoones (2005)

technically, I can't remember the last time a Minister of Agriculture knew anything about livestock issues.” (Interview MoA March 2011)

Other responses indicated that even for those at the federal ministerial level, participation is low;

“The Health Act is the new overall health policy in Nigeria – it has been adopted by the FMOH but is still in approval stage. Everyone from all health departments including PH have had an input - as much as they have the opportunity to make the inputs – you are asked to have an input but before you are done it has already gone through.”(Interview, NMoH March 2011).

Secondary data sources obtained through a series of questionnaire interviews in 2010 gave an idea about the knowledge and level of participation in policy processes with stakeholders outside the ministries. Most respondents felt that despite working within communities at the ground level, people outside the ministries had “*little access to policy makers*”, with consultations rarely, if ever, occurring between the government and the public; “*They claim to do it but it's not really done. If it ever is done, the information is not used in policy*”. Others were more vocal in their contempt for the current process of policy development and implementation in the country, borne from the frustrations of working within the system at the grass roots;

“The government is corrupt and self-protecting, there is poor allocation of resources for example the hospitals can be well equipped but they are not being used. Policies are the problem- they are not applicable to the field situation, poorly implemented and with very little enforcement - It is the vulnerable that suffer, the poor and ignorant are most at-risk of poor decisions made at the policy level.” (Interview, Health Sector March 2011)

5.1.5 Animal and Human Disease Surveillance and Reporting Systems

Passive animal disease surveillance and control is at state level; area veterinary officers (AVOs) posted to LGAs report monthly the state's Director of Veterinary

Services (DVS)²⁰⁴. State epidemiologists co-ordinate the monthly field reports and send to the federal epidemiology unit in Abuja²⁰⁵, who subsequently distributes information within the ministry and to the OIE. An OIE immediate notification system is in place for emergencies or outbreaks²⁰⁶. If definitive diagnoses are required, samples will be sent to the Nigerian Veterinary research Institute (NVRI) at Vom. For routine wildlife disease surveillance, or outbreaks in wild populations, a separate form²⁰⁷ is used. Recent examples include HPAI where surveillance officers captured wild birds for active surveillance, and sent samples from dead birds.

Besides the AVO passive surveillance, there exists what has been described as a “passive-active” surveillance at “high risk” areas across the country where animals gather together; such as markets, abattoirs, and state/international border control posts. At these risk areas, vehicles carrying animals must stop for inspection by surveillance agents. This system may fail for endemic diseases due to lack of legal endorsement, but interestingly during the HPAI outbreak AVOs and surveillance agents were generating a lot of data on suspected outbreaks; everyone was reporting it, most likely as a result of panic and increased community sensitisation .

Surveillance and reporting of *human* disease in Nigeria falls under the Ministry of Health’s Integrated Disease Surveillance and Response²⁰⁸ (ISDR) system. Disease Surveillance and Notification Officers (DS&NO) are employed by the LGA to

²⁰⁴ Not all LGAs have AVOs; one may cover two or three localities. Currently 594 AVOs cover 774 LGAs

²⁰⁵ “OIE Monthly Disease Report Form”

²⁰⁶ Notifiable diseases in Nigeria include NCD, PPR, CBPP, LSD, FMD

²⁰⁷ “OIE Wildlife disease reporting format”, see Annex

²⁰⁸ ISDR, a framework developed by WHO for African and Eastern Mediterranean member states for streamlining disease response

collect village level data on Nigeria's 40 "priority diseases" and report it to the state epidemiologist on a monthly basis, who sends it to the country's Chief Epidemiologist, also on a monthly basis. The State epidemiologist is responsible for all human disease control at the ground level, including outbreak investigations, sampling and reporting on disease status. The Health Commissioner is supposed to summarise the state health picture and present it to the federal government, however an official at the federal NMoH indicates there are some shortcomings in the current system;

"There's a lot of (state epidemiologists) who haven't been reporting on HAT which is a problem, they are supposed to report suspected cases but they don't. I know in Benue State they were found to have suspected cases, but we never got the reports formally, we got them first as rumours, so these are still issues that need to be corrected". (Interview NMoH March 2011)

This scenario is typical of the widely documented shortcomings of disease surveillance and reporting across Africa; *"in developing countries we have problems in the disease reporting system, we don't have data. It's not peculiar to animals alone; it's even in human beings."* (Interview MoA March 2011). The Nigerian government has acknowledged the situation needs addressing; Item 7 on the 2011 NCA memo²⁰⁹ is entitled "Status of Disease Reporting in Nigeria", which "expressed great concern" over the state of disease reporting in the country. There are currently no active surveillance programmes for zoonotic disease in Nigeria.

²⁰⁹ See Appendix V

5.2 Situating the Field Research: Background to the Kachia Grazing Reserve, Kaduna State, Nigeria

5.2.1 Changing Patterns of Land Use in Nigeria

“We who live in this place were the ones that named the place - a name that can suit this place and the mode of our lives – we named it “Ladduga”

- Interview with Heads of Blocks, Kachia Grazing Reserve, March 2011

In order to contextualise the primary data surrounding Fulani culture within this chapter, there is a need to understand the recent history of land tenure and conflict in Nigeria. Found in over twenty countries throughout West Africa, and known by many names²¹⁰, the Fulani belong to Africa’s “most diffuse ethno-cultural group” (Iro 20010). It is thought the Fulani originated from the Arabian Peninsula, migrating south-west to Senegambia and then east across to Sudan towards the Red Sea (Iro 2001, citing others such as de St Croix, 1945). The exact time when Fulani pastoralists expanded into Nigeria is thought to be around the 13th or 14th century (Blench 2010). Historically the Fulani have a long association with political leadership, scholarship and wealth, having developed an urban (sedentary) class of religious scholars by the early 19th century. At this time however, the Hausa rulers of northern Nigeria were conquered by jihadist Fulani invaders under Usman dan Fodio; he became the Sultan of the Sokoto Caliphate, which at the time was the largest African state south of the Sahara.

²¹⁰ “Fulani” being the Hausa term used in Nigeria

The Sultan of Sokoto declared ownership of all Hausa lands in the Fulani Empire, with land tenure organised according to Islamic inheritance law (Ezeomah 1985). With British colonial rule however, ownership of land by the Sultan was stopped, and northern Nigerian land became government property, from which permission had to be sought before land rights were granted for farming or grazing. Post independence 1960's saw the introduction of a land tenure under which land rights were either "statutory" (a grant of land for a specific number of years) or "customary" (allowing an individual or community to use land in accordance to Sharia law), symbolised by a "Certificate of Occupancy" from the Ministry of Lands (Ezeomah 1985). In 1978, the Military Government gave complete authority to the state and local level governments to assign and lease land under the 1978 Nigerian Land Use Decree²¹¹. Changes to land use laws over time helped establish relationships between "indigene"²¹² owners and Fulani "strangers"²¹³, whose tradition of "loaning" land from indigenes has left them permanently "on the outside" of land tenure (Ezeomah 1985). This is clearly in violation of Section 43 of the Nigerian Constitution that states "subject to the provisions of the Constitution, every citizen of Nigeria shall have the right to acquire and own immovable property anywhere in Nigeria" (ILO 2009). It is against this background the issue of land conflict, particularly concerning the Fulani, can be introduced to support the data on

²¹¹The 1978 Nigerian Land Use Decree removed the power of traditional leaders to distribute land, giving all financial and legislative powers to indigene officials within the local government areas. One example from Kebbi State details the opening up of a Fulani grazing reserve to cultivation as a result of a declaration by a prominent politician from the region (Blench 2010). Similar stories could explain in part the innate suspicion of the Fulani on KGR, and their reluctance to welcome and participate in the activities of "strangers".

²¹² The idea of "indigeneity" – a distinction between "host" and "settler" communities—is attributed by some to ensuring the cultural preservation of Nigeria's more than 250 ethnic groups. This rationale has however "been twisted beyond recognition" by state policies, leading to non-indigene marginalisation in areas such as employment, university fees and admissions, political participation and provision of basic services, that government does nothing to discourage (HRW 2006).

²¹³ As a result of their constant migration

government-governance issues between the Fulani and official government of Nigeria.

Accounts of pastoralists moving southwards into the subhumid “Middle Belt” zone (including the grasslands of the Jos Plateau) appear as early as the 1820’s, however they were forced back northwards into the semi arid zone during the rainy season, largely due to tsetse flies and trypanosomiasis (Blench 2010). The reasons for this gradual southern movement are many; however many cite the creation of dairy markets by Hausa traders, and the “relative security” of the British colonial period, whereby armed raids on Fulani grazing herds were largely curtailed (Blench 2010). The subsequent introduction of veterinary trypanocidal drugs and vector control resulted in Fulani settlement and increased pressure on the high quality Jos Plateau (Blench 2010). A MoA official expanded,

“there’s been a gradual movement of livestock population towards the south, because of this desert encroachment and the ability to treat or manage trypanosomiasis – before it was a serious problem now we have all sorts of drugs on the market so you can have your animals down in the rainfall area and keep dosing them with (trypanocides) and they are doing fine.” (Interview MoA March 2011).

By the 1960s, settled Fulani communities were appearing in areas previously occupied year-round by indigenes; one Fulani man in Mangu LGA (Plateau State) said that despite his family residing there for over 200 years, it could be reclaimed at any time by the indigenes (Field notes, Plateau State June 2010). Cultivation in the semi-arid zone has also been expanding since the 1960’s, with farmers progressing

northwards as a result of growing human populations²¹⁴ and pressure on existing subhumid areas; further encroaching on the uncleared bush which the Fulani view as common grazing land (Blench 2010). In addition to the ecological factors, a number of social factors have been attributed to the southwards movement of Fulani. One proposed theory is the collapse of the *burti*²¹⁵ system in the 1970's, with farmers claiming the rights to land and fertile waterways which Fulani cattle had been grazing for over two centuries (Blench 2010). Years of manure depositions had made these traditional cattle routes very fertile; land tenure laws at the time meant farmers – with more advanced education and therefore the ability to obtain the “certificate of occupancy” necessary to prove legal ownership of land – were supported by the government. Coupled with the decreasing necessity for the Fulani fresh milk products in favour of processed or non-traditional food items²¹⁶, the Fulani were running out of bargaining chips coming into the 21st century.

5.2.2 Pastoralist Conflict in Nigeria and the Grazing Reserve Act of 1964

Despite the long history of grievances between indigenes and the pastoralist Fulani, tensions seem to be increasing, particularly in Plateau State²¹⁷, with conflicts over the past decade reported in international media and brought to the attention of human

²¹⁴ Nigeria's population is estimated to have grown from 5 million in pre-colonial times to over 88 million at the 1991 census (Blench 2010)

²¹⁵ A system of stock migration routes across Nigeria agreed between Fulani leaders and the local government officials (or its predecessors), existing since colonial times or possibly before to reduce conflict.

²¹⁶ I observed the abundance of available soft drinks and cheaply produced sweets on the Kachia grazing reserve

²¹⁷ For example the November 2008 killings which left over 700 people dead in two days of violence in Jos (HRW 2009)

rights groups (HRW 2009). Although largely attributed to religious conflict between the indigene Christians and non-indigene Muslims (HRW 2001, HRW 2009), there are many who believe that tensions are purely economic in nature “irrespective of the religious, cultural and political colourations that might be diluted to advance certain objectives” (Abbass 2010). Recent reports of indigene farmers “baiting” pastoralists through encroachment on grazing routes, and crop destruction by cattle cited by over 40% of respondents as a predominant cause of conflict (Abbass 2010, Adebayo & Olaniyi 2008), whilst another calls for the government to “end the rhetoric” and take concrete steps to address the grazing needs of the Fulani herds (Adebayo and Olaniyi 2008).

An initial attempt to promote peace in the farmer-pastoralist debate was the creation of “grazing reserves” across Nigeria in the early 1960’s, whereby the local government was enabled by law to appropriate land for grazing purposes (ILO 2009). The overall purpose of the Nigerian Grazing Reserve Act of 1964 was to increase Fulanis’ access to grazing land for their cattle, whilst simultaneously encouraging their settlement²¹⁸; whereby land for grazing and water is offered in exchange for sedentarisation (Ingawa *et al* 1989). In a broader policy sense, it was also expected that the law would help address some of the wider constraints facing livestock development in Nigeria at the time (Ingawa *et al* 1989). However, various accounts reveal that the Act has not achieved many of its objectives; a recent report reveals that to date, a total of 2.82 million hectares (out of a stated 9.8 million in the 1988 policy) has been acquired for grazing, a total of 313 reserves (ILO 2009).

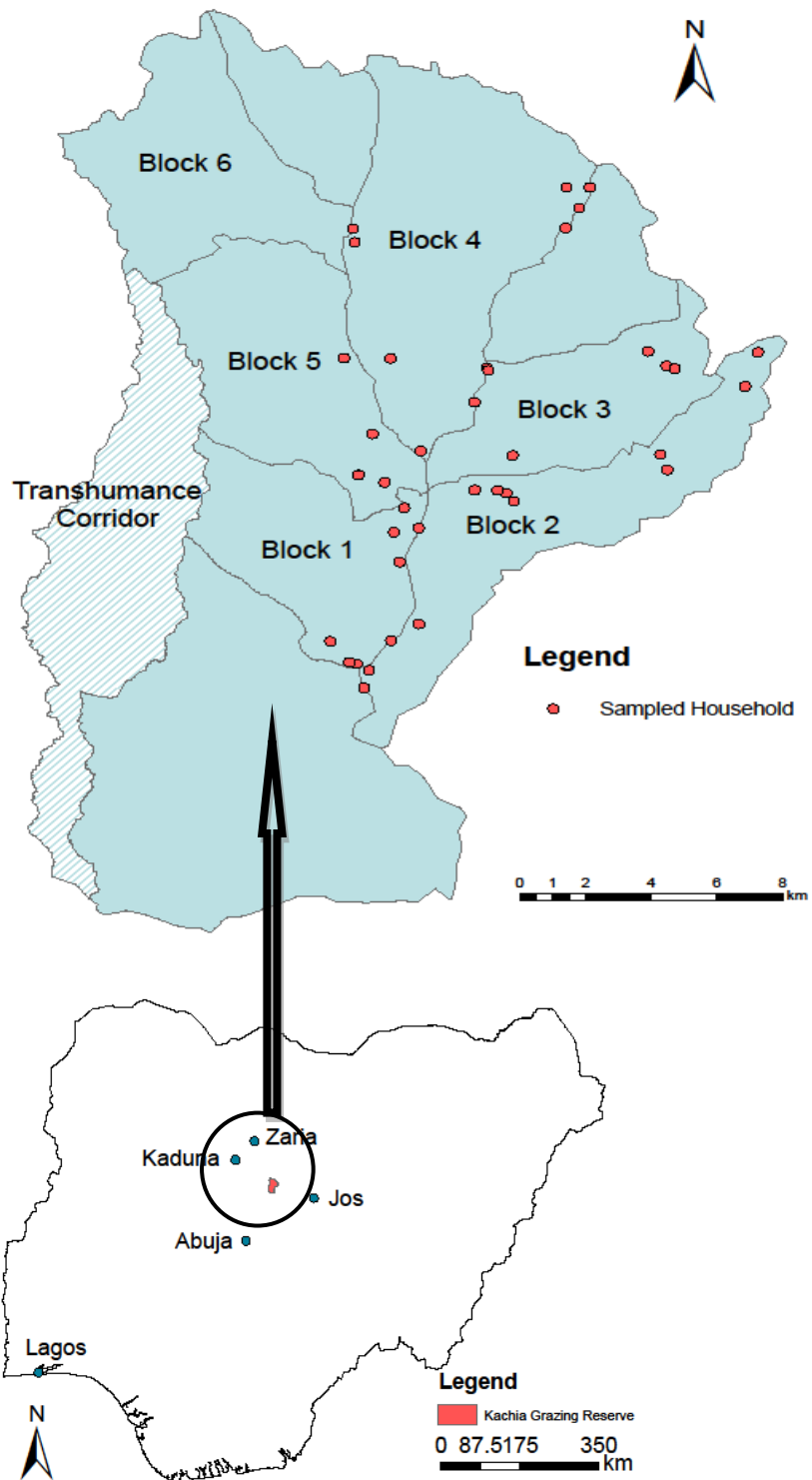
²¹⁸Criticisms surrounding pastoralist access to services and amenities have long been the argument for encouraging sedentarisation of the Fulani people in grazing reserves

Additionally, it appears that only around 24 of the established reserves have to date been formally gazetted by the government, meaning the occupants of remaining reserves do not have the rights to demand services set out in the grazing reserve laws such as roads and water provision (Kaufmann *et al* 1986). There have been calls that “relevant policies need to be put in place in order to address land accessibility, livelihood security and security of land rights (including) the protection of grazing routes and the full implementation of the National Agricultural Policy” (ILO 2009).

5.2.3 Description and Location of Kachia Grazing Reserve (KGR)

The community-level data collection for the Nigerian case study was undertaken via a series of focus group discussion at the Kachia Grazing Reserve (KGR) during 2010 and 2011 (see Chapter Two). Kachia Grazing Reserve was one of a number established by the Nigerian government under pastoralist settlement schemes in the 1960’s (Kaufmann *et al* 1986). Access to the reserve was gained via my involvement with the EU-funded Integrated Control of Neglected Zoonoses (ICONZ) project, of which brucellosis is the main zoonotic focus of the Nigerian component. Kachia Grazing Reserve is situated in Kaduna State in northern Nigeria, and covers an area of 31 000 hectares divided into six geographically-distinct administrative blocks (see Maps below). The reserve lies within the African tsetse-belt, and tsetse flies remain a large problem to both human and animal health on the reserve, despite being declared tsetse-free after a successful spray programme in 1967 (Oxby 1984).

Map 7: Detail of Kachia Grazing Reserve and its location within Nigeria (pink)



In the early years, inputs for the development of Kachia Grazing Reserve were received from the International Livestock Centre for Africa (ILCA) which had a research station there. By 1981, twelve families had settled; a smallholder dairy scheme, fodder crops and a permanent veterinary assistant deemed KGR “advanced in comparison” to others in Nigeria around the same time (Oxby 1984). The reserve currently has a population of 5252 people, distributed amongst 581 households over the six administrative blocks. Despite being “settled” pastoralists, the majority of Fulani on Kachia Grazing Reserve still take their cattle away to graze during the dry season²¹⁹. Block two (see Map?) is the most populated, containing 188 households, compared to only 80 households in blocks five and six combined (ICONZ 2011). Of the 581 households on the reserve, 569 own cattle; currently estimated to be 23 327 in number, with around 5914 sheep, 5058 goats and 123 donkeys (ICONZ 2011). The median number of cattle owned per household is 29, with numbers ranging from 1 to 303. Despite these livestock numbers, there is no permanent veterinarian on the reserve, although two slaughter slabs exist. The prevalence of most diseases are largely unknown, although animal brucellosis has an estimated prevalence of 8.6%, while another study found the prevalence of bovine trypanosomiasis to be 8.4 % (Enwezor *et al*, 2009, ICONZ 2011).

5.2.4 Establishment of Kachia Grazing Reserve

Primary accounts of KGR’s history and establishment are varied. Various respondents indicated the reserve was formed as a result of a “gift of land” to the

²¹⁹At my visit in March 2011 only 40% of the total cattle population remained on the reserve.

Fulani people by the Sardauna of Sokoto²²⁰. This is true to sorts; “romanticised” accounts from the Fulani cited how Ahmadu Bello “*asked us to come here*” and “*called our head men to this place*”, providing them with an opportunity to live in relative peace with their cattle. Others are quite clear in the government’s role: “*the federal government said there is no way to help Fulani people and the head men unless to call them into the reserve....if you come and be based in this place nobody will come to disturb you*”. (FGD KGR March 2011). Despite an objective of grazing reserve establishment being to settle “nomadic” pastoralists, it appears the majority of Fulani on KGR originated from neighbouring local government authorities, where they viewed themselves as relatively settled; “*We were the indigene of this place since from the beginning - we didn’t go out from our local government.*” This was reiterated by 1980’s research findings, where it was stated that at the time, all inhabitants “are Kachichere Fulani who have been resident in southern Kaduna State for generations” (Kaufmann *et al* 1986). It appears in recent years however, possibly due to the aforementioned increasing tensions in northern Nigeria, that settlers are increasingly coming from further away²²¹.

By all accounts, life on KGR was difficult in the early years of its establishment. Many indicated how the land given to them was thick bush, with no access roads, no water, and the only inhabitants a large variety of wildlife including “*elephants and bulls (buffalo) and lions and a big snake that used to swallow people*”. Several mentioned the appearance of a “hunter” who killed a lion, after which residents were

²²⁰Sir Ahmadu Bello; a prominent Nigerian politician and premier of northern Nigeria from 1954 up until his assassination in 1966 – an event largely attributed to Nigeria’s civil war and creation of Biafra

²²¹ Many FGD respondents indicated recent familiar origins from Bauchi, Kano and Nassarawa States

happy to move in; all wildlife on the reserve has largely disappeared now due to clearing of the land and the bushmeat trade. An older woman remembered the problems of childbirth: *“when a woman wants to deliver a baby we used to find some sticks, sew them together, put the woman on top and we used to carry her on their head (sic) and go into Kachia”*. It is little wonder the Fulani name given to Kachia Grazing Reserve by the original occupants is “Ladduga” meaning “wilderness”.

Accounts in the literature describe how the grazing reserves established in the 1960’s were all “situated in places previously avoided for sound ecological reasons” due to the difficulty displacing populations in highly productive areas (Ingawa *et al* 1989). An ILCA research group attempted to keep cattle on Kachia without supplementation found that almost half suffered severe malnutrition (Ingawa *et al* 1989, Kaufmann *et al* 1986). An often-referred to challenge in the early years was the flies; *“if you’re moving around you have (sic) to carry a leaf for protecting yourselves from flies biting, but now the place is OK to live you can even come with your sleeping mat to sleep outside”*. Besides references to the effects of these flies²²² on themselves and their children, respondents also remembered the effects of flies on their cattle at the time; *“because of (the flies) you will see blood on the body of our cattles and after this you will see tears coming out of their eyes then they will fall sick”*. Respondents indicated how the situation became so severe in the wet season that they were forced to move their cattle off the reserve; literature implies that this may have resulted in tension with nearby settled farmers as a result of crop destruction (Ingawa *et al*, 1989). There were accounts of the original inhabitants moving off KGR in the 1960’s

²²² Presumably disease-causing flies such as tsetse and black flies causing trachoma

as life was too difficult, and even in the period between 1978 and 1988 only 34 households settled on Kachia (Ingawa *et al* 1989).

Since the establishment of KGR in the 1960's, it appears that whilst the Nigerian government has provided some assistance under World bank directive, the Fulani have relied heavily on their own initiative and inconsistent help from donors to establish even basic infrastructure and systems of health and education. Despite these challenges, the Fulani are optimistic, with many describing their "peaceful life" and pride at how their "Ladduga" is developing to date. World Bank grants have helped to build dams, as well as an (albeit appalling) access road. Schools, a marketplace and other necessary buildings including the hospital have been built, and each Fulani household owns a small plot on which they can farm millet and other agricultural foodstuffs. Additionally, the feelings of "safety" and "security" associated with life on the reserve²²³ were apparent; "*no-one can come and enter your house and claim that it is their house; where you fence your house, that is yours*". Another respondent remembers from Plateau State:

"We were living peacefully, then people are coming so the place is very crowded. So because of that people start fighting for this land and we are not able to rear our cattles - that is why we migrate from there to this place". (FGD KGR March 2011)

I remember one day being unable to get public transport from Kachia town back into Jos because the taxi drivers were convinced they were "going to be killed" if they drove us there; indicating the very real fear that exists within the areas that have experienced recent tension.

²²³ As opposed to the daily security issues in Plateau State and other areas faced by Fulani not settled on reserves

In conclusion, the long standing land issues between migrating Fulani and the settled “indigenes” in agricultural areas show no sign of abating. Despite the introduction of grazing reserve policies to encourage settlement, it seems the conflicts and tensions between ethnic groups are ever on the rise; the first decade of the 21st century was particularly bloody in certain parts of the country²²⁴. Repeated calls²²⁵ for the Nigerian government to seriously address land accessibility and livelihood security issues seem to have been recently heeded; a memo presented to the NCA in March 2011 “urged the National Assembly to accelerate the process of passing the bill on the National Grazing Reserve Commission which will go a long way in addressing the issue of Pastoralists – Farmers conflicts”²²⁶. A recent USAID report echoed the sentiment that the continued conflicts over land were impeding agricultural development; “unless the issue of land use in Abuja in particular, and Nigeria in general is reviewed and the needs of traditional livestock producers accommodated, (dairy development) will be very slow and strenuous” (USAID 2007).

It would be easy to push aside the issues of land conflict, claiming that for the purposes of this thesis the seemingly endless political turmoil is not relevant to livestock policy and disease control processes. However a concluding remark from a government official in Plateau State reminded me that nothing is independent of anything else, and we must continually look at the whole picture in order to make sound governance and policy decisions:

“Land issues are the underlying problem on the Plateau, these go far beyond any policy issues concerning animal production and disease control. Until

²²⁴ For example the 2003 and 2008 massacres in Jos, Plateau State (HRW 2009)

²²⁵ For example see ILO (2009) and Adebayo and Olaniyi (2008)

²²⁶ Item 5 2011 NLDC Communiqué, see Annex V

land use policies which diffuse conflict between Fulani and indigenes is developed and promoted, we will never get to address animal health; it would be futile.” (Paraphrased from Interview, MoA June 2010)

5.3 Fulani Governance Mechanisms

“We follow rules, we don’t break rules”

- FGD KGR March 2011

Literature refers to Fulani governance structures as “quasi-governmental”, whereby identifiable leaders have strong decision-making authority (Iro 2001). Field observations and focus group discussions held during my time on the reserve illustrated the “institutionalised political leadership” described in the literature²²⁷; insights into the daily lives of the Fulani revealed the strict governance structure where everyone has a place, and everyone knows what their place is. Although FGD participants seemed slightly uncomfortable discussing their political set-up, there were indications that the structure on the reserve loosely fitted with documented accounts of the “Ardo”, (mediator between the Fulani and the “modern law” of official government) and the “Lamido” (clan head and spiritual advisor who can advise according to Sharia law).

When questioned about the different types of “laws” or “rules” which existed on the reserve, the variation in answers paints a complicated governance framework, consisting of many actors with varying levels of influence (Figure 7). Some indicated the laws of the Nigerian government were the predominant influence on their

²²⁷ See for example Iro (2001), Riesman (1977)

behaviour; using the example of the application process through the Ministry of Land and Survey (via the village heads) necessary for land acquisition. Others however indicated the government enforced “*no rules at all*”; possibly emphasising the feelings of neglect and isolation from official government processes which appears in a number of interviews and secondary literature sources²²⁸. For important life events such as inheritance and marriage, guidance is sought from religious leaders so as to correctly follow the “Laws of Islam”. Other times, it was difficult to distinguish between whether the ward or village heads developed the laws, or were responsible for enforcing those of the government:

“They used to make rules in situation where our cattles used to drink water, that nobody should go there and fetch water for drinking because the water is not good for drinking by humans. So the law have been made on this and nobody is going there” (FGD KGR March 2011).

When asked how they feel about decision-making and communication of various laws and rules on the reserve, responses were typically guarded; “*we feel happy, because when the rule comes, it works on us, it is for our own benefit*”. Others indicated that possibly the “top-down” governance structure of the KGR was not enjoyed by everyone “*because of the behaviour of our people, some people will start murmuring and arguing why are they prevented from going to such a place. So this is how our people are*”. Still others indicated the enforcement of laws and rules was a necessary part of life, whatever the circumstance; “*everywhere people are based, if they have their leaders, there will be laws*”.

²²⁸ See for example Blench (2010), Marietu & Olarewaju (2009), Iro (2001)

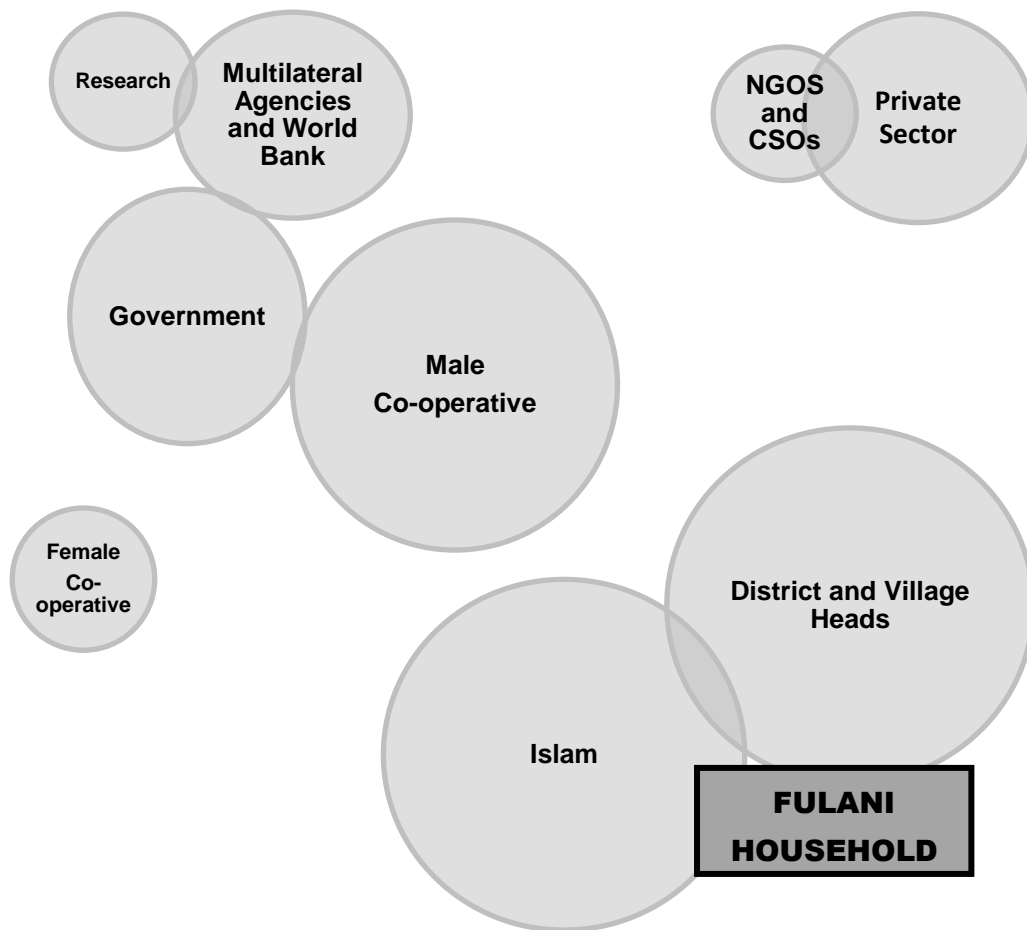


Figure 8: Venn Diagram Showing Relative Stake of Various Actors within the Fulani Governance System on KGR

5.3.1 The Role of Government

By all accounts, the relationship between the Fulani and official government structures has been weak for some time, possibly since the early 19th century. Historical accounts of British-Fulani relationships indicate that despite the relative peace brought to the Fulani at that time²²⁹, the hated cattle tax “jangali”, abolished in 1976) was a bone of contention, and resulted in suspicion of government. To this

²²⁹ Attributed by some as the original cause of southwards migration by the Fulani, see for example Blench 2010

day, tensions between the Fulani and Nigerian government remain strained, particularly in the livestock sector; structural adjustment measures have been blamed for the government's inability to amass funds and justify vertical disease prevention programmes such as herd vaccination (Interview, MoA June 2010, other personal communication).

FGD participants, particularly the males, readily voiced their opinions on the subject of government²³⁰ provision of livestock health services. Many respondents recalled frequent government vaccination programmes against “harbin darji” (blackleg), “bakkale” (brucellosis), “bauru” (FMD), “bushiya” (Rinderpest) and “huhu” (CBPP) under military rule (1984-1993). They mentioned that outbreaks were taken seriously by government and responses were swift, especially the highly contagious “huhu” or “bushiya” indicating the importance placed by government on livestock prior to World Bank structural adjustment programmes. There currently exist no government animal health programmes; the only external interventions experienced on the reserve in recent years have been through research projects such as the “Sammore” (trypanosomiasis) programme mentioned by some²³¹; *“there is no programme. If there is a problem with disease here I have to go and inform the district head and he will inform the project manager²³²”*.

²³⁰ I wondered at one point whether referral to “government” was a broad term used to describe any donated goods or services, regardless of the source. With time I realised a clear understanding existed of where donations and other forms of external assistance were coming from; ultimately I am confident that referrals to government assistance do actually mean the Nigerian government at one level or another.

²³¹ Assumed to be earlier trypanosomiasis work from NITR in conjunction with NVRI in Vom, some of which has been published for example Enwezor *et al* (2009)

²³² The KGR government programme officer in Kachia, but there was little indication anything is ever done about disease notification or requests for assistance

When asked why these government programmes ceased, one response was simply “*everything is about siasa*” (politics), which I assumed to be a loaded statement, however further probing revealed respondents merely felt government priorities had changed since democratic rule took over from the military²³³. Despite it never being specifically mentioned, I sensed some Fulani feel the government has rejected them and their role in Nigeria’s livestock sector: “*now we do everything on our own*” and “*you cannot wait for anybody to come and do it for you*”. It seems that the government is all too aware of such sentiments, and they too are concerned at the widening gap between the Fulani and government:

“In the past we had national campaigns for disease control; there was a good relationship between Fulani and the government. Now, since structural adjustment, most of the free government programmes have collapsed - this leads to a widening gap between Fulani and government officials, as the government now has nothing to offer the Fulani in terms of animal health services” (Interview MoA June 2010).

Even if human and financial resources were available, it appears that the overall health of Fulani livestock has deteriorated to such a degree that some government officials were at a loss to what could actually be offered; with “blanket” vaccine programmes considered a waste of time and money in the absence of good overall herd health:

“Before you even vaccinate, you may have to think of deworming, you may have to treat (for clinical disease) - these are not the well planned farms that you know - you discover that the general health status of the herd is another problem”. (Interview MoA March 2011).

In terms of other government-assisted agricultural inputs, fertiliser was the only commodity mentioned²³⁴, and many complained the cost was still prohibitive:

²³³ Possibly indicates a lack of communication and awareness surrounding higher international policy decisions

²³⁴ Aberman *et al* (2009) provides a good background to the policy process regarding privatisation of fertiliser in 2006

“Government is not helping matters. Because if you want to farm you have to buy fertiliser and now there is no fertiliser is below 2000 naira²³⁵ so sincerely speaking, the fertiliser is not reaching us – even if it does, it comes at a high cost” (FGD KGR March 2011)

Polio vaccination programmes remains the single government-driven health intervention on the reserve today²³⁶, despite frequent circulation of communicable diseases such as measles (personal communication). Accounts from older Fulani recall times when emergency assistance would be provided by the government, for example during cholera outbreaks or times of famine, whilst other more recent government activities have included grading the access road, and some construction assistance such as building of schools.

Liaison with government officials appeared to be the responsibility of several influential individuals on the reserve, such as one of the ICONZ project facilitators who worked for the LGA and headed of one of the male co-operatives. The grazing reserve is supposedly represented at the local government level by a Ministry of Agriculture Project Officer within the Kachia LGA, and a government veterinarian who I was told rarely came to the reserve *“because of the too much work he has (sic)”*. The aforementioned KGR Project Officer was deemed the only “official” link between activities on the reserve and the wider local or state laws. Understanding and impact of official government policy processes remains low; possibly reflecting the limited contact between the Fulani and government representatives. Apart from the leaders of the male co-operatives (see later), the teachers were the only participant group who indicated an understanding of higher level political processes,

²³⁵ About \$12 USD at time of interview in March 2011

²³⁶ Extensive literature exists of the 2003 boycott in northern Nigeria of federally sponsored polio vaccination campaigns, with many believing “evidence” that the vaccine was contaminated with anti-fertility drugs to sterilise Muslim women – see for example Kaufman and Feldbaum (2009)

indicating the National Union of Teachers (NUT) as being informative on the current policy debates occurring at higher government tiers. These groups were however the exception; more often than not, respondents indicated they get messages from their village heads if there is some legal government business concerning them, thus having little participation in government policy or other decisions made outside the reserve .

One government official suggested reinvigoration of the government extension system could help improve government-Fulani relations. Extension services have currently collapsed across many parts of Nigeria, particularly in pastoralist areas; blamed on the expense and logistics of maintaining constant contact with isolated, transhumant communities such as those on the reserve. The extension service was regarded an integral component of successful implementation of disease surveillance and reporting policies *“because that’s what leads to communication with these Fulanis, not this once in a year communication”* (Interview MoA March 2011). However, government extension services are no replacement for clinical (private good) services, nor are they supposed to be due to their public good nature. This differentiation needs to be understood by both the government and Fulani alike; if the Fulani cannot understand why immediate problems of sick animals cannot be addressed by extensionists, it will only lead to further lack of trust and confidence in government services.

Interestingly, when the Fulani were asked what areas they would like to see provision of government support and services for on the reserve, animal health was

not mentioned²³⁷. Overwhelmingly, the Fulani's expectation of government was to maintain provision of water and roads, which, being a gazetted reserve, is not outside the expectations of government as outlined in the Grazing Reserve Act of 1964.

5.3.2 The Role of Islam

The influence of Islam on Fulani identity is well documented in the literature (for example Iro 2001, Riesman 1977). Despite having “*so many ethnic groups*”, participants overwhelmingly considered themselves to belong to only one; “*the Fulfulde, joined by Islam*”. Religion, rather than state law, appears to play the most prominent governance role in everyday life; these “*traditional laws*” determine social behaviour such as marriage, inheritance and daily rituals. Celebration ceremonies were strongly Islamic in nature, such as Sallah (Eid al’Kabir) or naming ceremonies; there was no mention of harvest celebrations or others involving the livestock and environment which play such a major role in their lives. Any mention of *nbodoto* (traditional beliefs or myths) initially resulted in vehement denial: “*no we don’t have them, there is nothing like this*”, however further probing revealed the existence of traditional medicine and other beliefs²³⁸ indicating that despite what is projected to outsiders, strong traditional practices may still exist.

5.3.3 The Role of the District and Village Heads

The hierarchy for internal governance on Kachia Grazing Reserve consists of the much-respected head of the reserve, followed by the heads of blocks, then the ward or village heads. At the community level, it appears that outside of religion,

²³⁷ Exploration of Fulani “willingness to pay” for veterinary services occurs later in this section

²³⁸ One account gave their belief that you should only travel on certain days of the week

behaviour of individuals is largely determined by what the village and district heads deem appropriate or necessary behaviour. Selection of the block and village heads was done *“the way that Shaihu Usman dan Fodio²³⁹ taught us to do, that is according to our knowledge of Qur’an”*. When asked about their role, one of the village heads likened it to *“what the village heads of the world are doing”*; they are responsible for overseeing development of the reserve, and promoting peace. Many respondents indicated that their behaviour, particularly in terms of their interaction with “strangers” from outside the reserve, depended on what their “leaders” (usually the village or ward heads) told them to do. For example, if visitors did not have permission to speak to the Fulani, no-one would turn up to the meeting (field observations). Powerful individuals could turn a whole community against the “outsiders”; such as our experiences described in chapter two.

By all accounts, enforcement of rules and laws by local leaders seemed relatively easy on the reserve; at least that is the picture portrayed to foreigners. As one respondent replied, *“we respect our leaders and we respect what they say to us and we follow rules – if a leader makes a rule no-body disobeys”*. This appears to be the case regardless of what the rule was or who it affected. Further probing revealed village heads and elders would enforce rules on where to graze cattle, where their children could play, and when they could leave the reserve; *“if he says no-one is to go to crossing, then no-one will go to crossing”*. It also seemed that village leaders or elders could make and enforce rules about social interaction if it appeared to be detrimental to the wider community;

²³⁹ The afore-mentioned religious and political leader who became the Founder of the Sokoto Caliphate in 1809, subsequently leading the Fulani jihad across much of west Africa

“There is one game played during the night where one sees his colleague and he beats that colleague with a stick. The head of the village called the villagers to attention and gave them a law forbidding them to play that game”.

5.3.4 The Role of Co-operative Societies

There are a significant number of co-operative groups on the reserve; discussions were held with both the female and male co-operative leaders. No mixed-sex co-operative groups exist and little known about the activities in groups of the opposite sex; the only activity mentioned where both female and male groups worked together was for an HIV/AIDS enlightenment campaign led by an external NGO. The majority of informants seemed to be aware of the existence of co-operative societies on the reserve, but unless they were directly involved or received something from them²⁴⁰, responses about activities were usually vague.

5.3.4.1 Female Co-operative Groups

Female co-operative groups exist on the reserve under the umbrella group “Mbigeweti” (“now we are enlightened”), and include other societies such as “Wuro Nyako” (House of Nyako), “Wuro Fulbe”, (House of Fulani), “Mayo Borno” (River Borno) “Wuro Lobi” (House of Lobi), and “Wuro Tale” (House of Tale). Only one of these is registered with the government; lack of registration is a major bottle-neck for achieving goals; without it societies cannot interact with outside funding groups such as other NGOs which come onto the reserve. It appeared the main activity undertaken by the female co-operatives was to advance credit to individuals wishing to start up or maintain business, however the impact of this remains unclear. Other

²⁴⁰ For example the women >65 age group spoke of receiving goats from one of the women’s co-operatives

activities undertaken include making goods to sell at the market such as soap and creams, and using gifts of flour to make “chinchin” (cakes). There also appeared to be a significant contribution of the women society groups towards promoting education on the reserve; the women place high importance on their childrens’ education, playing a dominant role to ensure this is achieved;

“This school that we are in now, it’s the society that built it and most of the teachers of this school are paid for with our own money from this society. Our men here they don’t pay for their school fees. If you want your children to go to school then you have to get money for their school fees”

Contributions to women or child health however, seemed to be less organised, for example gathering of money to take to the sick took precedence over any formal liaison with external organisations for the delivery of health campaigns. Again, the lack of registration of the majority of women’s groups was blamed for this; *“they (the NGOs) came with their message but they didn’t collaborate with us because we were not registered”*. A final activity mentioned by some women was the ubiquitous NGO “development” strategy that continues across great swathes of the African continent with little evidence of success (personal observation); free provision of small livestock to women with little consideration for ongoing veterinary and husbandry costs. Predictably, this activity also failed in KGR; as one woman confessed *“all the goats died”*.

Interestingly, the women do not have a milk society group. I found this surprising; possibly because of the extensive literature surrounding the Fulani women’s role in milk production and sale, often portrayed as the single activity allowing them some

financial and social independence²⁴¹. The explanation for why there was no female milk society appeared to be that they did not see the need, it was not worth pursuing as a commodity; *“if you are looking for milk in this place, you will get it”*. This possibly reflects the isolation of the KGR and the resulting barriers to business opportunity, also the observation across much of the literature that the decreasing requirement for fresh milk products has limited Fulani contribution to wider society²⁴². On retrospect, there is also the possibility the women may have been “shut out” of this activity by the male co-operatives; the second time I was there (March 2011) the World Bank had donated a brand new milk processing plant; I had a feeling that association with milk at this time meant association with those who controlled a large sum of money.

5.3.4.2 Male Co-operative Groups

Like the female co-operative groups, the male co-operatives consisted of around fifteen societies which all fell under the “Nbela” (umbrella). In contrast to the women’s groups however, all male co-operative societies on the reserve were registered with the Nigerian government; thus allowing them to liaise with outside funding groups. This appears to have given the male co-operative societies a distinct political advantage; it was by far the only homogenous group interviewed in the FGD series which indicated an understanding of, and participation in, government policy processes and politics; *“now we are in politics, and we have our ward councillor here. He represents us”*. Another participant implied a strong co-operative is the only way to gain political voice and standing in local government: *“If you are looking for*

²⁴¹ See for example de Bruijn (1997)

²⁴² Even on the reserve, powdered milk was used in abundance, we drank it every day in tea and coffee bought from the kiosk

a councillor in this community, if you don't have a society you will not win." There were also indications that the male co-operative leaders had a very good understanding of (and confidence in) the communication process between the KGR Fulani and government should it be required;

"if something happens within this our community we report to the district head. If it concerns the local government, we report to the chairman (of Kachia local government). If it concerns the state (Kaduna), we report to the governor. If it concerns the federal government, we look for a representative that will go and tell the federal government. This is how our societies carry out their projects"

Activities of the male society groups included campaigning for development of the Kachia access road, digging of wells, and a number of agricultural initiatives including the planting of trees and procurement of livestock drugs and feed. Others indicated the relative ease with which the male co-operatives could obtain livestock inputs, particularly drugs, through a good relationship with the local government veterinarian. Example of the extent of their influence can be seen by the recent acquisition of a milk processing plant mentioned in the previous section;

"We are the ones that fight for (the milk processor) in collaboration with KADP²⁴³. The co-operative tell the KADP that this is what we want in this place - if not because of the society, nobody would think of such an initiative" (Male co-operative FGD KGR March 2011)

Another important role is to liaise with the local government for provision of fertiliser; a commodity with a history of "highly contentious political issues" in Nigeria (Aberman *et al* 2009). Some participants in other FGDs implied that co-operative groups were not always successful in obtaining it, or could be using the situation to the advantage of those closest to them;

²⁴³ Nigerian government's 2011-2012 Kaduna State Development Programme partnership with external donors

Participant 1: *“The society groups collaborate with the government to get the fertiliser for us”*

AO: *And if they collaborate with the government, do they get the fertiliser?*

Participant 1: *No we don't get it in time”*

Participant 2: *“We don't get it at all”*

And also,

“We have problems with fertiliser, we don't get the fertiliser we want. When we get allocations for fertilisers, there are some people that used to hide it, and go away with it. Sometimes we pay money for fertilisers and don't get it until after one year. Because of this, we have much problem.” (FGD KGR, March 2011)

Overall, it appears the male co-operative groups, at least some of them, are quite powerful in terms of their bargaining power with local government. Despite the majority of internal power on the reserve being held by village leaders, I feel the male co-operatives; given their external contacts and knowledge of local and state government policy processes, potentially have a large influence on the implementation and enforcement of government policies on the reserve, and, politics aside, could be a key stakeholder group through which strengthen government-Fulani relations, particularly in the livestock and public health sectors in future.

5.3.5 The Role of NGOs and Other External Organisations

NGOs were mentioned mainly in the area of health services and messaging, including PARE and a number which deliver HIV/AIDS awareness. One respondent indicated that an NGO was responsible for the building of classrooms on the reserve, however this was disputed by another who claimed it was a Chinese company. Generally, I felt that the NGO sector did not play a prominent role on the reserve; many admitted they did not know the names of the various organisations that came in

and out, possibly a defence mechanism against long-standing expectations they will just move on;

“There was a time some people came to this place and they are with some drugs, sometimes (we) just hear the people came, but at the end of the day we will not see them again”(FGD KGR, March 2011).

Health messages given recently include mostly sanitation such as boiling and sieving the water and washing hands after using the toilet, and the omnipresent HIV/AIDS advocacy:

“There was a time we got orientated from other people about HIV/AIDS and the NGO spent over ₦70 000 because of this enlightenment....and there are other NGOs similar....but we can't differentiate between them” (FGD KGR March 2011)

One attempt to promote the welfare of Fulani pastoralists and increase their socio-political power was the establishment of “Miyetti Allah” (Thanks be to God), a religious organisation formed in 1972 to represent the interests of Fulani in official government circles, with a major objective being to improve Fulani access to grazing land. Several respondents on the Kachia grazing reserve indicated their knowledge and participation in what is now called the Miyetti Allah Cattle Breeders Association of Nigeria (MACBAN); which has extensive branches across northern Nigeria (Kaufmann *et al* 1986). I found two extensive references to this organisation in the literature from the early 1980's; one account seemed quite positive of Miyetti Allah's achievements in its first decade, with references to its recognition at both the federal and state levels of government (Ezeomah, 1985). The other however stated that Miyetti Allah had “no authority in the domains of most concern to pastoralists, namely disease control and land rights”, and implied organisation was weak and

achievements relied “more on individual initiative and sponsorship” rather than any collective action by the Fulani (Kaufmann *et al* 1986).

5.3.6 The Role of the Private (Veterinary) Sector

The Fulani on KGR do not have regular access to a veterinarian; drugs including oxytetracycline and antihelmintics are bought at the Friday market, with some indicating they travel to Kachia, Zankwa (Kaduna State) and as far as Jos (Plateau State) to collect drugs and vaccines. Drugs were also acquired on the rare occasion someone from the government veterinary department came out to the reserve; “*the doctors used to come and give our animals injection sometimes individually, sometimes a lot of them*”. For some things, such as internal parasites, it appeared the drugs worked well. There were however indications that the quality of drugs varied, or the wrong drug was being used

“Sometimes we used to vaccinate our animals on several occasions by giving them injections and drugs. But we have not seen any response so we spend much of our money. So this thing disturbs us seriously”. (FGD KGR March 2011)

Others indicated ethnoveterinary medicine was also practised; “*the native doctor will come with the medicine and put it in the water, sometimes we just try and give it to the animals, but we don’t know the actual names of the medicine*”.

Lack of access to veterinary services is common throughout much of Africa since structural adjustment, particularly in remote rural areas. Several attempts to strengthen veterinary services have largely failed, for example the widespread

Community Based Animal Healthworker (CBAHW) programmes initiated by numerous NGOs in the 1990's. Although proposed in Nigeria under the food security programme due to their “*success in east Africa*”²⁴⁴, it failed in large areas of Nigeria. The Nigerian Veterinary Council argued that instead of introducing yet another tier to the veterinary profession, the Animal Health Technicians (AHT²⁴⁵), if trained in communication and supported by both government and communities, would be able to improve veterinary services through large, particularly rural, areas of the country;

“There exists a requirement to open eyes of AHTs and show them they can make a living in rural areas, especially if their animal health knowledge is combined with husbandry services. For example the vets had a good response from Newcastle disease vaccination in conjunction with the HPAI vaccination programme, as it sensitised the public about holistic poultry care and disease control. If the same can be done by AHTs I am confident they will gain public confidence.”(Interview MoA March 2011).

Another interesting conflict I discovered was the overriding assumption of Nigerian colleagues and some government officials that the Fulani only wanted free veterinary services,

“Mistrust of Fulani is a big problem. They prefer to observe vets then self treat. They are aware of the vet facilities but don't use. Their knowledge is more of a barrier than otherwise. Training them may make it worse” (Interview MoA June 2010)

Despite professional frustration towards certain actions by the Fulani, for example under-dosing of cattle therapeutics to “*try to ration it for their whole herd*”, I couldn't help but feel economics was not always the main reason for this (unlike

²⁴⁴ CBAHW programmes were a popular NGO approach to providing improved veterinary services to remote rural areas in East Africa throughout the 1990's, buoyed by the Rinderpest Eradication Scheme. However, its “success” is questionable; the heavily monitored and subsidised approach, and rejection by the region's veterinary sector, means there is little evidence today of a sustainable system
²⁴⁵ Another paraprofessional tier of veterinary service provider, however unlike the Community Based Animal Healthworkers, AHTs are formally trained in college and are required to be registered in the Nigerian Veterinary Council

others as demonstrated in the above statement). Conversations on the reserve indicate that *accessibility* to private services could be the major barrier to seeking professional advice; *“if you see your animals are in emergency condition, you go and buy it yourself, you cannot wait for anybody to come and do it for you”*. Another Fulani farmer explained:

“You are supposed to know which type of drug to give the animal even if you don’t know what the animal is suffering from, so we are facing this problem”.

Whilst professionals may interpret under-dosing of cattle as a sign of unwillingness to pay for professional advice, it must be realised that in the absence of choice, people will do the best they can. Despite common assumptions that the Fulani do not want to invest in their cattle, experiences from Kachia grazing reserve indicate disease control is rated as a very high priority by the Fulani, if not for the economic benefit, but the social repercussions of sick animals; *“cattle disease causes fights between people because most of the disease is contagious and we like vaccination more than cure.”* This is potentially an extremely powerful motivator to improve control of zoonotic disease within Fulani herds and stem the level of disease circulating within the food chain in Nigeria.

My overriding impression that the Fulani were happy to pay for veterinary services, but, like farmers the world over, the quality of service mattered, was reinforced after speaking with higher-tier government officials experienced with Fulani communities:

“I think they’ve gone beyond (expecting free veterinary services)...the only thing that keeps the Fulani man, or anybody, is a quality service, I think it’s very easy to establish that. For example if before the Fulani man has even showed you his animals you are getting out drugs, calculating money - that is the wrong approach. Instead, if you take your blood, right there you do a

smear, and you tell him “come and see the trypanosomes”²⁴⁶, that Fulani man cannot go to sleep! He will ask “you mean this thing is in the blood of this my cow, destroying the blood?” and he will ask you to give him the solution to kill the parasite. It’s all about communication²⁴⁷” (Interview MoA March 2011).

Certainly the Fulani valued the free preventative vaccination programmes delivered to them by the previous government “*because vaccination is better than medicine*”. In this era of veterinary privatisation, it appears the Fulani are certainly willing to invest in animal health, if a quality service is available. Until those working within the veterinary sector across Africa strive to ensure their services are affordable, accessible and of good quality, there is little chance disease control, particularly of the zoonoses, will occur. As one informant knowledgeable on Fulani culture explained;

The Fulani people they are the easiest (to work with) if you know the instrument to hold them. You cannot come and give him the same dewormer he can buy (at the market) for N1000, and stand there asking him for N10 000....I think the way we are approaching it is a little bit...not professional.”(Interview MoA March 2011)

5.4 Livestock Matters: Interaction between Governance Actors for Livestock Disease Control

Whilst comments around lack of trust of Fulani and difficulty in engaging them within the current veterinary system may seem fairly innocuous, in terms of public

²⁴⁶ A fresh blood smear in an AAT positive animal will demonstrate the *Trypanosoma* parasites moving around under the microscope

²⁴⁷ I strongly agree with this last statement. In a privatised system, veterinarians cannot complain about non-professionals undercutting business if they are not willing to, or cannot, provide a superior service. I have found veterinary superiority/apathy to be so entrenched in the veterinary profession in some countries that I suspect it has to be a contributing factor to the dramatic failure of veterinary privatisation, particularly across Africa.

health, they could have dire consequences. For without effective communication between the veterinary profession (whether public or private) and the Fulani, there will be ongoing problems with disease control, including zoonoses;

“(if) we are talking about zoonoses you have to look generally, broadly at disease control. That is you can’t say you are looking at zoonoses. If you have a policy for good disease control then it will practically solve the problems of zoonoses”. (Interview MoA March 2011).

5.4.1 KAP Study Livestock Disease and Management

An understanding of Fulani knowledge, attitudes and practices to livestock disease control is important, given the potential implications on human health in terms of control of zoonoses and minimising risks in the animal food chain. Throughout my time on the reserve, lengthy discussions were held with the Fulani about their livestock and disease management practices. The most commonly cited disease, particularly prevalent in the wet season, was “Hanta” (liver fluke). While accounts exist in the literature of deaths associated with acute fascioliasis in northern Nigeria (Ogurinade and Ogurinade, 1980), I question whether the parasite itself is really the cause of the wide variety of symptoms associated with “hanta”. Haemorrhagic septicaemia²⁴⁸ and also “harbin darji” (Blackleg due to *Clostridium chauvei*) have been diagnosed on the reserve; descriptions of “sudden death” in cattle would better fit with a septic co-infection of fasciola, and account for the wide variety of signs the Fulani associated with the parasite.

Other commonly cited diseases included “Sammore” (trypanosomiasis), “Bakkale” (brucellosis) identified as swollen joints and the “*cow will be having continuous*

²⁴⁸ Also depicted in Bolajoko *et al* (2011)

abortion”, “Bauru” (FMD) of which “*the symptoms is limping, the cow will be silent and stay in one place - there will be no milk at all*” and “Kuda” (flies). “Taki” was mentioned; it translates as “manure” although it was unclear as to whether this may be diarrhoea or constipation, both a common sign of tick borne disease. Less commonly cited diseases included references to “Huhu” (literally meaning lungs – most likely CBPP or Pasteurellosis), “Lahoji”(rabies) and “Dauda” which translates as “dirtiness” so possibly a referral to diarrhoea or perhaps abortion²⁴⁹. One respondent replied “*there is also one where the cattle develops big rashes all over its body and it kills when the animal gets infected and that one is called “Gurda”*”; differential diagnoses include secondary infection with Lumpy Skin Disease or Dermatophilosis.

When asked how their animals contract diseases such as FMD, CBPP and brucellosis, all respondents showed a good understanding of communicable disease transmission, indicating their animals became sick when taken away for grazing and mixed with other cows; “*sometimes they go for grazing they meet other animals that are sick and they bring (the diseases) back*”. The cause of FMD was clear “*most of the time they used to come back with Bauru because they mostly carry it during grazing, we want vaccination here*”. A similar reasoning was given for liver fluke; “*when a cow is residing on a place for one year and they left and another cattle come to stay at that place they get hanta*”. Similarly, the logic given for the cause of brucellosis fits with the sexually transmissible nature of the disease; “*for the female*

²⁴⁹ In his ethnography *Freedom in Fulani Social Life*, Paul Riesman describes the fulfulbe phrase for menstruation as *yi’ ude tuundi*, which literally means “to see dirt” (Riesman, 1997). I am therefore extrapolating that if the Fulani “are seeing dirt” from their cattle, it could be a reference to abortion.

cow, if the male cow is following her too much she will be affected with the bakkale".

Other responses indicated the cause of diseases was often unknown; *"sometimes we don't know how it occurs we just see the cows dying"*. This could indicate the lack of access to (or, as suggested by some, willingness to use) professional veterinary services, or could also indicate causes of acute death, such as anthrax, is circulating.

The wet season was singled out as a time when animal diseases are most prominent; a factor which has also been recorded in the literature (Bolajoko *et al* 2011, Iro 2001) *"We have several diseases when it is rainy season - we don't get much milk from the cattles and the cattles are not eating so they are not strong (sic)"*. Whilst most Fulani assumed cattle diseases were obtained off the reserve during the dry season, there was at least one respondent who indicated his cattle became sick when they came *onto* the reserve, suggesting a number of diseases were also circulating within the reserve itself;

"I am a stranger here at Ladduga. I came here last year during the rainy season, I entered here with my cattles, are in very good condition but before I leave this place the cattles become somehow (ill) until I carried them to where I came from, then they came back into good condition"(FGD KGR March 2011).

5.4.2 Local Knowledge and Perception of Zoonotic Disease Risks

For a society so strongly tuned into the health of their animals, I found the Fulani's limited knowledge of zoonotic diseases surprising; *"we have not gotten messages about (zoonoses), we have not seen anybody enlighten us about these diseases"*.

After continued probing and indignant replies of *"no we don't eat dogs"*²⁵⁰, rabies²⁵¹

²⁵⁰ Islam forbids it, in contrast to the dog-eating Christians of nearby Jos and surrounding Plateau State, which are held in low esteem by the Fulani

was the single zoonosis recognised by the majority of participants, possibly as a result of cases on the reserve;

“yes when a mad dog bites somebody, that person will become mad. There was a time a mad dog bit somebody and the person start shouting like a dog and they took him to the hospital at Kachia and the person died”.

In terms of other animal species capable of transmitting disease, most people replied you could not get diseases from cattle, sheep or goats. A minority of respondents – all males – indicated their suspicion about the existence of zoonotic disease, for instance the similarity between swelling in the legs (which they termed “rheumatism”) and “bakkale” (brucellosis);

“We are doubting about other diseases like when a cattle are infected maybe when you drink the milk from that particular infected cow, or you eat the meat of that cow, you will get infected, but we are not 100% sure.” (FGD KGR March 2011)

Another replied they thought zoonoses existed because *“when a man is having a particular disease they used to give him drugs that we are giving our animals, so that makes us think that there are some diseases common to man and animals”*. The reserve doctor Idriss Wuro indicated he was suspicious of bovine tuberculosis and brucellosis circulating on the reserve²⁵² however lack of diagnostics were a barrier to definitive diagnosis.

The risk factors for transmission of zoonotic diseases are similar to those found in any group of people closely associated with their animals. Although Islam prohibits

²⁵¹ From experience this will likely elicit a response as unlike the majority of other zoonotic diseases, communities are able to make a distinct connection between the cause (being bitten by a dog) and effect

²⁵² Given his experience of clinical signs such as orchitis in the men, abortions in women

the consumption of pork, dogs, donkeys, and dead animals²⁵³, there are still a number of practices that undoubtedly expose the Fulani to zoonotic disease. Consumption of raw milk, and the handling of aborted fetuses and their associated birth products (men only) are two such examples. Responses about whether milk was boiled before consumption were mixed; many replied they preferred boiled milk to the raw product because of taste, with the closest referral to disease being “*sometimes the flies get into the milk*”.

A common difficulty of sensitisation for many of the neglected zoonoses²⁵⁴ was that cause is not linked with effect, as summarised by one of the women;

“Since we were young, if we took our cattles (sic) for grazing, after the baby has finished sucking the milk from its mother, we too go directly to the breast and suck milk and nothing is happening to us. But now the world has changed, anything you do, people will tell you that you will become infected” (FGD KGR March 2011)

The only two zoonoses described as having a treatment were rabies and brucellosis. Dr Wuro explained the major problem with rabies post-exposure prophylaxis (PEP) is keeping stocks on the reserve; an inconsistent electricity supply disrupts the cold chain, so they patient must go three times²⁵⁵ to Kaduna to get the course which is expensive. The communities gave accounts of patients being administered the post-exposure prophylaxis too late: “*He was taken to the hospital and unfortunately the doctor is not giving him the injection, for stopping the rabies maybe, so the person died*”. Suspected brucellosis is treated much the same way as it is in animals;

²⁵³ Potentially decrease the risk of a number of zoonoses prevalent in other populations such as porcine cysticercosis, glanders and anthrax

²⁵⁴ Rabies being the exception

²⁵⁵ This is according to the WHO’s *Abbreviated Multisite Schedule* or 2-1-1 protocol used in Nigeria, see <http://www.who.int/rabies/human/postexp/en/>

“We have some of the traditional medicine like one “binchchare” – something you get close to the dam areas and it will be grinded and mixed with potassium before giving it to the animals to drink. But for humans, “nboli” – the roots of this nboli together with “eay”, also “dinale” and the roots of the “bonge”, these are all traditional methods used to treat bakkale. We take the medicine through the mouth with water, and also spread on the joints” (FGD KGR March 2011)

5.4.3 Fulani Self Governance for Disease Control on Kachia Grazing Reserve

It has been seen that outside these demarcations of “traditional” (Islamic) and “modern” (government) law, there appears to be a third rather strict layer of internal governance and rule-making governed by the heads of blocks; if they decide on a new rule, everyone follows it seemingly without question²⁵⁶. Village heads are responsible for the issuance and enforcement of animal quarantine, particularly upon their return from grazing off the reserve during the dry season.

“There is not any law that came to us about how to handle our cattles. Yes we make laws on our own, we used to gather ourselves together and tell our neighbouring villages there are those with the cattle infected, that they should be grazing on their side, they should not come to our side”. (FGD KGR March 2011)

One participant implicates FMD as the primary reason for segregation of suspected cattle, however the same rules appear to apply for any disease outbreak for which they don't know the cause;

“Here in Laduga if your cattle are infected with the disease you cannot hide it. You will tell people whether you can get help from them, if they have something to help you, but if the infection rate is high that's where you will be given a rule to restrict your animal from grazing where the other animals are” (FGD KGR March 2011).

²⁵⁶ See however Riesman (1977) chapter five “Authority relations in the *Wuro*” which distinguishes between Fulani understanding of authority inside and outside the household; it is the latter which is referred to here

There was also confirmation that vaccination programmes (for example against *Clostridia* infection) were organised and paid for collectively by the Fulani, in the absence of any government assistance. External accounts indicate these self-imposed rules for disease prevention can be quite strict; one government official told of his experiences further south in Oyo state, where the Fulani formed a committee preventing other Fulani coming from the north onto their grazing reserve due to fear of disease introduction.

The low input Fulani system has been blamed for the perceived lack of incentive for Fulani to invest in disease control; commercial operations cannot compete;

“The nomadic Fulanis are just roaming about looking for grazing land. So at the end of the day, no matter what price he is selling his animal, he is still making money. If you have your cattle farm, you want to have your pasture, you want to have your workers, you want to supplement feed, there’s just so much you spend in costs. If you go to the same market as the Fulani herd, you discover that there is no need for you to be there.” (Interview MoA March 2011).

This point was reiterated at another interview with a member from the private sector;

“Livestock isn’t market oriented. Herd size is a status symbol. This is the major motivation for Fulani. Investors in commercial agriculture shy away from livestock. Those who invest in livestock have unclear motives” (Private veterinarian, Jos Plateau December 2009).

Whilst many argue that the Fulani are not interested in marketing their cattle, the fact remains that the likelihood of a Nigerian eating beef, mutton or goat that has come from a pastoralist herd is extremely high; up to 80% anecdotally, so investment in this sector is probably worthwhile. Ultimately, a large priority is to improve the relations between the Fulani and the wider Nigerian “indigene” and government communities; which given the history of conflict and feelings of “neglect” will take

some time. However, it cannot be ignored; *“Because if the Fulani man does not like your face, he will not give you any good history. And you need that history.”* However, there is a long way to go before Fulani-outsider relations are improved to the point where livestock disease control, and the subsequent improvements in human and animal health, becomes commonplace. One government official felt the intermittent nature of communication between Fulani and government authorities is a major barrier to building good relations;

“We have to sustain (communication) - there is so much suspicion, that I’m sorry to say - we have communication to a point, and the next thing, no contact with them, we don’t see them again. Next time you see another set of people coming with a new idea” (FGD KGR March 2011).

Meaningful long-term input into Fulani communities will only arise from multiple visits with them, which in turn will allow a deep understanding of the complex Fulani psychology, necessary to build sustainable working relationships with them. By their own admission, many officials within Nigerian government departments acknowledge that continuous contact and understanding of the Fulani is lacking;

“How you get that confidence (with the Fulani) is through continuous contact. Not periodic or haphazard contact. Where the Fulani man is able to appreciate that you are coming, that your presence is a help to him - you have to establish that even before a Fulani man is going to pay for a service. If you don’t develop that confidence, it’s going to be a problem” (interview MoA April 2011).

5.5 Understanding of the Local Situation by External Actors: Strengthening Advocacy and Political Prioritisation of the Endemic Zoonoses

I found informants working within the public health sector across the ministries to be largely frustrated at the lack of advocacy and awareness at the policy level for the

neglected endemic zoonoses in Nigeria. One informant explained how “high level” advocacy can help; funding in one Plateau State LGA was received after a MoH representative gave a presentation on local health issues to the visiting Health Commissioner, concluding “high level advocacy helps a lot but needs to be consistent, clear and repeated”. An additional frustration faced by many public health practitioners at both the state and federal levels in Nigeria is that states need to put money into zoonosis surveillance and control programmes, but this can only occur if sufficient data exists in the first place to show it is a problem in that state;

“Last year (2010) the Director of the Federal Epidemiology Unit presented a memo to the NCA on brucellosis²⁵⁷, but there was not enough data to convince the federal government to put in funds for this disease. It is an emotional issue for some as a professor of animal science at Ahmadu Bello University in Zaria died of brucellosis – they cannot make it a national issue because of one death, but many feel frustrated that this disease is out there and they cannot do a lot about it.”(Interview MoA March 2011)

5.5.1 Passive Surveillance and Underreporting of Zoonoses

Lack of information from the ground level, leads policy makers to assume many zoonoses are not a problem; “It’s difficult to know the true prevalence as it is a rural problem, and all rural diseases suffer from underreporting”. One informant explained her frustrations that disease diagnosis is not holistic, and many diseases have been “forgotten” by the medics; “For example with HAT it took me SO MUCH to get people to start looking out for HAT again, everyone had forgotten about it”. She blamed the emphasis placed on the “big three”, even at an undergraduate level in the medical school, as one of the possible reasons for this;

“there is not so much emphasis as compared with the emphasis placed on malaria, and the common diseases like HIV, TB - but it’s good to really revisit such issues again because it took time to get people to (realise) that we

²⁵⁷ Based on the results of a FELTP MSc which found a high prevalence of Brucellosis in Kano State

still had HAT here. But now I know the suspicion index is increasing because previously we never got any report at all of HAT but now doctors will call and tell you that they treated patients for malaria and they still present the same symptoms, so they would now like them to be tested (for HAT)” (Interview MoH March 2011).

Another official deemed the lack of diagnostics as the root cause for poor prevalence data from the ground level in Nigeria:

“I’m sorry to say but we have so many antibiotics, we go to the hospital, even as they are taking your blood someone is recommending Ciproxin²⁵⁸ and those things are going to cloud whatever the problem is.....they give you anti-malarials, you go back the second time, the antibiotics is given to you....for you to come out with a diagnosis is another area again”. (Interview MoA March 2011)

Dr. Idriss Wuro on the KGR gave a reason of the realities of why cases are often not worked up, particularly at the primary healthcare level, citing cost and lack of diagnostics as an issue;

“What we normally like to do in an investigation is to find out the diagnosis. But when you bring in the cost-benefit, you need to treat first – in my personal experience I have not made even one diagnosis of brucellosis, I’ve been working here almost 10 years. Yes we see orchitis but what we think in orchitis is they are moving to TB, we give them antibiotics and it usually clears up. At the end of the day you have to make a decision and start to treat, rather than wait for test results – if they spend all their money on tests they will not be able to afford the treatment.”

The problems with diagnostics appear to be logistical as well as financial. The simple presence of a strong light could require a generator, which needs petrol to run it; the costs of diagnosis can therefore easily escalate to more than what people can afford to pay. However, without diagnosis, records are not accurate, and the “field” data misrepresents the true picture, given *“very few people actually come out to the ground level to see what the story is”*. Despite indications from both ministries that the professionals are starting to recognise the extent of zoonotic diseases, many fear

²⁵⁸ Ciprofloxacin hydrochloride, a broad-spectrum antibiotic

it will take some time to obtain evidence for their prioritisation within the policy arena. Some feel that the “vague” picture on the ground is one of the largest bottlenecks in sensitising policy makers, particularly at the federal level where many feel interest is only generated by the money, rather than the issue:

“The HPAI programme created awareness but the big politicians think it’s just more money from the World Bank and don’t want to understand the project” (Interview MoA March 2011)

As described in section 5.1.5, Nigeria appears to have a thorough disease surveillance and reporting system, however the reality reflects the major issues found across many developing countries; the quality of the content is failing. Reliance on passive surveillance is futile; distances are far and even if there were the human and financial resources available to carry out the work, the difficulties of diagnosis lead to under-reporting. Interestingly, passive reporting was very successful during the 2006 HPAI outbreak, most likely reflecting public fear and strong financial backing from international donors. In the absence of these factors, for example in the case of most neglected zoonotic diseases, reliance on passive reporting is questionable, particularly as this is largely what drives policy in the form of memo submissions and acceptance to the NCA.

5.5.2 Efficacy of Abattoir Surveillance

Currently, prevalence data for some food borne zoonoses is obtained through abattoir surveillance. By all accounts, mismanagement of abattoirs means using these for disease surveillance is futile; abattoirs are run by civil servants who collect revenues based on the number of animals going through. The figures for animals tested are

“made up” according to the targets required by the government, resulting in a lot more being “recorded as tested” than actually get tested; as one informant complained “*meat inspectors fear butchers, therefore no animals are condemned*”. Recent, attempts to reform the abattoir system across the country were largely unsuccessful as the local level stakeholders were not engaged in the process; I was told how butchers refused to do business with a new abattoir in Lagos as the improved standards meant abattoir slaughter took longer; animals slaughtered after 8 am would not get to the market and sold that day so a lot of meat was getting wasted. Even if the abattoir system in Nigeria was more transparent, many government officials think it would be better to approach zoonotic disease control from the farm level: “*An abattoir is just an end point. An abattoir shows you the mess of what is happening at the farm level*” (Interview MoA March 2011).

5.5.3 Improving Prevalence Data for the Zoonotic Diseases: Nigeria’s Field Epidemiology and Laboratory Training Programme (FELTP)

Nigeria’s FELTP programme began in 2008 with a mission to “*assist Nigerian Federal Ministry of Health and Federal Ministry of Agriculture in building sustainable network of field epidemiologists, vets and laboratory managers in measurably improving the PH services*” (Interview CDC March 2011). FELTP is a worldwide capacity building programme modelled on CDC’s Epidemic Intelligence Service (EIS) in the United States. The objective is to improve skills within the public service, so when students graduate they are better equipped to support government surveillance and reporting systems, particularly during outbreaks. The two year Masters in Public Health (MPH) programme is attended by students

seconded from the ministries of health and agriculture and funded by CDC, with “funding in kind” from government ministries through the continuation of salaries and guaranteed post-programme employment. The MPH course is conducted through the Universities of Ibaden and Ahmadu Bello University Zaria, with further support from the African Field Epidemiology network (AFENET). Studies are linked to an identified need for information from the ground, and many centre around the neglected zoonoses such as rabies, brucellosis and bovine tuberculosis²⁵⁹.

To date, the majority of informants from both the ministries of health and agriculture had only praise for the FELTP programme, and all indicated that such a programme will be instrumental to instil a One Health attitude to intersectoral disease surveillance and response within the ministries; “*FELTP doesn’t matter whether you’re a vet or a medic - something is growing now*”. Other respondents however, including a past student of FELTP, indicated some of the short-comings of capacity building in the absence of strong national health systems.

“Administrative and systemic issues are much harder to resolve through a capacity building programme alone, however the training aspects of surveillance, laboratory strengthening, public engagement has been instrumental and we’re already seeing impact on the ground” (Interview MoA March 2011).

²⁵⁹ Completed studies to date include an assessment of Post-Exposure Prophylaxis (PEP) for rabies in Plateau and Nassarawa states, pig slaughterhouse surveillance for influenza, and the molecular characterisation of tuberculosis lesions to identify the proportion of multi-drug-resistant human TB infections attributed to *M. bovis*. Currently there are ongoing investigations into brucellosis and social determinants of disease spread such as the role of unhygienic milk habits in the spread of bacterial infections such as *E.coli* and *Shigella*.

5.6 Conclusion - The Future of One Health in Nigeria

The discovery of HPAI in Nigeria in early 2006 catalysed a number of emergency actions by both the Nigerian government and the international community in an attempt to stem the loss of human lives and livelihoods from the disease. By all accounts, government support and the promotion of One Health approaches for disease control were unprecedented, resulting in focused interdisciplinary collaboration for possibly the first time in the country. Events since external funding finished in 2009, and questions of the sustainability of One Health in Nigeria's current health and livestock sectors, has been one of the interests of this case study, attempting to explore the second proposition of this thesis that:

“The evolution of One Health from the ‘emergency to the everyday’ necessitates integration of local perspectives”.

Nigeria's Fulani people, through their long standing and well entrenched role in the livestock sector, have a potentially large stake in the country's public health status. However social exclusion, tradition and physical isolation lead to questions surrounding the relevance of government policy to their lives; understanding the Fulani internal governance systems may provide the key to improvements in the level of disease entering the food chain.

Insights into Fulani knowledge, attitudes and practices obtained at the Kachia Grazing Reserve between June 2010 and April 2011 helped gain a wider

understanding of Fulani governance mechanisms in the context of livestock disease control on the reserve. This in turn was related back to activities at the Federal level with regards to One Health and general disease control in Nigeria. It appears that despite advances at the higher government levels for the promotion of One Health, “official” government policy is irrelevant to Nigeria’s Fulani pastoralists, which are isolated from mainstream society. For successful control of disease in rural societies, of which the neglected zoonoses play a potentially large component, there is a need to look from the “bottom up” and further explore community-led decision-making processes, such as the localised enforcement of quarantine which is already occurring to some degree on Kachia Grazing Reserve. I conclude that harnessing the existing “political hierarchy” within Fulani social structure may promote disease control in the absence of government policy or veterinary services. Evidence gathered from the grazing reserve suggests that mobilising this existing internal Fulani governance structure is a potentially powerful way to prevent disease transmission.

At the national level, One Health shows “*very good possibilities*” in Nigeria, largely as a result of the HPAI procedures, however it appears maintaining the momentum will be difficult despite the best interests of individuals. By all accounts the approach is clear and widely accepted within the veterinary sector; however the medics are lagging behind. Despite this, many feel as a result of increased awareness from HPAI, and ongoing internal government programmes such as FELTP, the medics “*have no choice now*” but to get on board. As one Ministry of Health informant explained from her experiences with neglected tropical disease programmes;

“Previously the medics were not able to work with anybody, as far as they were concerned they thought they knew it all. I want to use as an example the

Guinea Worm programme; they were like “if it’s not a doctor or medical programme we’re not sure it’s going to work”. They thought they were so good. So this time around, with the One World One Health thing, it doesn’t have to be particularly a sector, or a particular group within the health sector, or people that provide health services. Most of all it’s supposed to be a holistic approach, people have to learn to work together and achieve common goals as far as I’m concerned”. (Interview MoH March 2011).

Despite the optimism, and the large amount of advocacy and funding for HPAI, One Health is far from institutionalised in Nigeria. Several recent publications have reflected this, for example a recent study in Kaduna State found less than 50% compatibility with the Integrated Disease Surveillance policy passed in the country in 2002 (Abubaker *et al* 2011). Perhaps though exploring alternative, community centred approaches to disease control, the relevance of a One Health approach – particularly in remote rural communities who lie outside the sphere of traditional government control whilst practises place them at potentially high risk of zoonotic diseases - will be realised.

CHAPTER SIX:

THESIS CONCLUSION

6.1 Revisiting the Four Research Objectives in light of the Hypothesis

Although the role played by animals in human health and wellbeing has been acknowledged for centuries, a resurrection of “One Medicine” philosophies has occurred in recent history. The emergence and rapid spread of diseases such as HPAI and SARS during the first decade of the 21st century acted as “trigger events”²⁶⁰ for dominant international policy narratives surrounding securitisation and pandemic preparedness. Messages of fear circulated in both the scientific and mainstream media, reinforcing the seriousness of the situation and providing the veterinary sector with their “moment in the limelight”²⁶¹ to showcase abilities and gain access to resources and funding historically out of its reach, in a movement now termed “One Health”.

Central to the One Health movement are calls for the adoption of an intersectoral approach encouraging the veterinary, health and environmental sectors to work together, particularly at the national ministerial level, for the prevention and control of zoonotic disease. The justification of integrated disease control programmes is

²⁶⁰ As discussed in Keeley and Scoones (1999)

²⁶¹ From Scoones (2010:23)

undisputed, given the multidisciplinary required for their control. However, the realities of combining even just veterinary and human health disciplines is more complicated, and despite calls for “commonsense to prevail” (Van der Zeijst 2008) the progress to date has been slow, particularly in developing countries, where experiences in Africa and central Asia show that collaboration has often been “totally lacking” (Zinsstag *et al* 2005). Empirical evidence within this thesis from the various veterinary, health and academic sectors imply that despite the “excitement” surrounding One Health in recent times, intersectoral collaboration has been slow to take effect, particularly in the absence of external funding; fundamental changes to ministerial bottle-necks are required if One Health is to feature permanently in future public health and environmental policies.

Using a comparative “extended” case study methodology²⁶², this thesis examines three One Health propositions, each aimed to explore a different aspect of One Health in the African context, with a specific focus at the international, national and local levels of policy development. These three propositions were developed as a means to anchor the broader arguments around interdisciplinary collaboration within each empirical chapter that support the overall objectives, ultimately acting as a mechanism through which to prove or disprove my hypothesis. The research contributes to the growing focus on not whether, but *how* One Health could be operationalised, particularly in developing countries dominated by the “big three” of the Millennium Development Goals, and a poorly functioning livestock sector largely concerned with diseases of trade rather than its role as a reservoir of zoonotic

²⁶² See Burawoy (1998)

disease. Zoonoses therefore tend to “fall between the gaps” of health and livestock sector responsibility, particularly for the endemic neglected zoonoses which do not enjoy the high profile taskforces afforded to their more dramatic cousins including Ebola, HPAI and Rift Valley Fever. This conclusion starts by revisiting the original objectives outlined in section 2.1 of this thesis, with a discussion as to how they have been addressed in light of my original hypothesis. This is followed by a discussion around the contribution of the research to the literature, and how its content relates to current thinking around One Health and health policy, particularly in the African context.

As stated in section 2.1, the overlying hypothesis I wanted to explore was:

The practical realisation of One Health as a framework for global health is inherently complicated, given its dependence on the mutual agreement and co-operation of a wide range of nations, sectors and actors whose mandates and priorities greatly differ.

Avian Influenza gave a unique opportunity to those agencies, governments and academic networks involved with public health and security to “meet” each other, forge alliances and work together under the “One Health” banner. The highly politicised nature of the response to avian influenza, coupled with its “Global Public Good” image and unprecedented financial commitment, created a policy space that facilitated stakeholder collaboration and co-operation. In recent years there has been a drive to maintain the momentum of the HPAI response, with advocates arguing for

the need to apply the good practice it to other aspects of international and regional health governance. However as time goes by it is becoming more difficult to find practical examples of One Health operationalisation, and governments that show true commitment to the approach within national health frameworks. My initial suspicions as to why this may be the case, particularly in developing countries, revolves around competition for resources in the absence of an “emergency” situation which ultimately, I suspect, discourages collaboration. The following section addresses my original objectives more specifically, highlighting to added understanding to One Health in the developing country context and subsequent recommendations arising from this thesis.

Objective 1: Identify the current *processes* by which animal and human disease control policies are developed; that is the *how* of policy, rather than the *what*.

For both the Ugandan and Nigerian case studies, extensive interviews were conducted with officials in the Ministries of Health and Agriculture in an attempt to address this objective. Engaging in discussion with these representatives revealed some major assumptions from the respondents, whether intended or not, about the way policy is developed in these two countries. Despite the initial descriptions of the policy process resembling the “rational, linear” approach²⁶³ with a strong emphasis on participation from the lower levels of governance²⁶⁴, further accounts of the process as interviews progressed eventually revealed the influence of various actor-networks and the “politics” behind policy making that excluded the opinions of several stakeholder groups. One informant referred to the “erosion of technical

²⁶³ For example see Figure 5

²⁶⁴ Particularly in Uganda as described in section 4.2.2

authority”, whereby health and agricultural policy decisions in the two countries are made “behind closed doors” at the highest echelons of government with little, if any, technocratic consultation. This was openly discussed by a number of informants and examples given including Uganda’s disputed Plan for the Modernisation of Agriculture being largely the result of a World Bank initiative. More seriously, a lack of technical input is attributed to one of Uganda’s biggest public health crises in recent history. The northwards spread of HAT from endemic areas during the 1990’s was largely caused by a government re-stocking policy; the result of an agreement between the Office of the Prime Minister and international donors and NGOs. Had prior consultation from MAAIF officials occurred, Uganda’s Animal Disease Act and the requirement for pre-movement treatment of cattle from HAT endemic areas would more than likely have been flagged up, and the crisis possibly averted, or at the very least lessened in its severity. However as one informant explained, the “deal was done” in the office of the Prime Minister before MAAIF officials were even aware of its existence. If One Health or indeed any policy framework to address the previously discussed international health and food security concerns of the 21st century is to be effective, there must be an overriding change of attitude by those responsible for policy development and implementation. This involves institutional shifts at all levels; both vertically between donors and recipient governments, and horizontally within national government offices. There is an urgent need to restore the technocratic consultation process, and once again respect the capacity and inputs of the technical ministries, particularly as the balance between resources, food production systems and health becomes ever-more complex.

Triangulation of ministerial views on policy processes with the community realities revealed a void between policy and practice at the ground level in both Nigeria and Uganda, particularly in the livestock sector where the dominant “safe trade” policy narrative²⁶⁵ is largely unimplementable on the ground²⁶⁶. There was little evidence that communities showed an understanding of the policy process which occurred at the government levels; of all the FGDs conducted (n=29) only the male co-operative group in Nigeria were able to demonstrate some understanding of how policy could be influenced, and this was only at the local government level. In this way, my empirical evidence very much supported the view of policy making as “the mystique of elites, separated from [local] people (which) place policy-making processes in rural and agricultural development into a privileged position” (Clay and Schaffer 1984, quoted in Sutton 1999). It appears that despite the rhetoric common to international development discourse surrounding “participatory” processes, pro-poor policy development and community empowerment, little of this actually occurs. The following example from Uganda is a classic case-in-point, highlighting the void that still exists between development policy rhetoric, and the on-ground reality of its practice:

“The women used to walk long distances to collect the water. So the policy makers thought that by drilling them a borehole next to their village it would prevent them walking such long distances. But when the borehole was drilled, the women continued moving long distances collecting water from other villages. So eventually they were asked “we have drilled you a borehole here but you are not using it, you are still walking long distances”. They said “the water is not our problem. We want to interact with other women, because when I walk far I see so and so, and we catch up, and discuss issues” ...policy has to be in line with the people, and their problems - Policy is all about what affects people.” (Interview Serere District August 2010)

²⁶⁵ As discussed in the *Livestock Disease and Trade in Africa* case study, IDS (2006)

²⁶⁶ Possibly with the exception of FMD as detailed in the Uganda case

Objective 2. Attempt to understand the requirements for the realisation of One Health in high risk rural communities, particularly pertaining to advocacy and control of endemic zoonotic diseases in areas with limited animal and human health resources.

Empirical evidence from Nigeria and Uganda focused on community perception of zoonotic disease risks, and how national policy plays out in often isolated, rural areas with poor access to health and veterinary services. Through the course of the research I wanted to examine the relevance of national policy processes to everyday life of the pastoralist Fulani and Ugandan agro-pastoralists, and whether a national One Health framework in developing countries would really change the way decisions were made, communicated and implemented in such environments, where the effect of government policy appears to be rarely felt. One of my main conclusions was the importance of understanding risk *perception* within affected communities on zoonotic diseases²⁶⁷. I found that for endemic zoonoses with vague symptoms, particularly those with a febrile component imitating malaria²⁶⁸, interventions require advocacy and communication strategies above and beyond that for high profile diseases such as Ebola, rabies, and even HIV/AIDS and malaria. Convincing people they can contract a disease through everyday actions such as drinking milk, eating meat, being bitten by a fly or helping livestock to give birth is a difficult undertaking which should not be underestimated, nor neglected in favour of the quest to achieve “good science”. Post-SOS II intervention evidence collected in Uganda indicated that despite a large investment into the science, community understanding of HAT transmission, and as such the likely continuation of

²⁶⁷ As opposed to the widely researched and well understood risk *factors* concerning the majority of zoonoses

²⁶⁸ For example first stage HAT, Brucellosis and Leptospirosis

preventative spray measures, remained weak. Sound advocacy and communication strategies based on a combined understanding of national policy processes and community perception of disease should be an inherent component of any zoonotic disease control programme in rural areas of Africa. A recommended wider consideration for those national and international agencies involved in disease control at the local level is how to effectively harness the local knowledge and governance mechanisms for disease control which is already naturally occurring, for example the enforced quarantine of Fulani cattle herds described in Chapter Five.

The elephant in the room in any discussion surrounding public health policy in Africa, particularly for those that advocate for the control of endemic zoonotic and food-borne disease within the livestock reservoir, remains the poor performance of the veterinary sector across Africa. This results not just from a lack of ministerial resources, but what I consider to be a lack of professional confidence and united front. Excuses by veterinarians for poor sectoral performance can be heard regardless of the region; farmers are “too poor”, they “prefer to use quacks” or they “don’t care about their animals”. Veterinary problems existing across Africa appear to be two fold and self-perpetuating: discouragement and disillusion by veterinarians at the lack of private sector opportunity is consistently compounded by the lack of access to, or faith, in veterinary services by rural communities - a never-ending “chicken and egg” scenario. Whilst communities in both Nigeria and Uganda overwhelmingly indicated they would prefer to pay for a professional veterinary service over a non-professional one, the services needed to be both accessible and affordable *in conjunction with* providing value for money. Additionally, livestock

markets in Africa demonstrate a low level of veterinary professionalism, which does not encourage clientelism from the rural poor; they in fact demonstrate the polar opposite to what should be happening in a healthy trade environment²⁶⁹. Currently, markets across Africa are treated as a “dumping ground” for sick livestock and a haven for poor professional conduct. Whilst the veterinary profession, in conjunction with academia, can certainly address some aspects of this (particularly regarding professionalism within the sector²⁷⁰), larger political commitment is required to encourage veterinarians to rural areas, acknowledge their technical capacity and improve their traction within decision making processes. Without a vibrant, dynamic, well functioning and well funded veterinary sector, Ministries of Health will continue to commit large amounts of money to “fire fighting” diseases such as HAT, rabies or tuberculosis in the human population, all the time neglecting the role of the animal reservoirs and having little impact on transmission.

Objective 3. Examine the motivation for developing countries to contribute to the growing international drive for One Health; particularly given its focus on emerging infectious diseases²⁷¹, and their potentially limited relevance to Africa’s extensive rural systems where the majority of health funding is required.

Possibly as an attempt to garner wider international support, or in the very least “mask the political under the cloak of neutrality”²⁷², a recent shift from narratives of fear and securitisation towards “One Health as a Global Public Good” has recently occurred. Despite the obvious investments into collective action associated with this

²⁶⁹ As discussed in section 4.6 of Chapter Four

²⁷⁰ Pertinently discussed in section 4.4.5 (page 164)

²⁷¹ In particular HPAI

²⁷² Described by Shore and Wright (1997) as a “prominent feature of modern power” in Sutton (1999)

narrative, the fact that not all diseases are found in all countries means that the dominant public health or environmental problems of many developing regions may continue to be neglected through framing One Health in this way. Specifically, GPGs have been suggested as a logical classification for fast-moving or trade-related diseases such as HPAI; also the most likely to occur as a pandemic and as such override state control²⁷³. Either way, classification of One Health activities as a GPG are probably quite restrictive, and may not be appropriate long term if global health governance continues its fast-paced changes to address arising issues in the 21st century.

Whilst some encouraging examples of the application of One Health can be seen in Asia, Africa in particular appears in danger of getting left behind in the global movement. This is despite a strong case for One Health on the continent, where the fragile interaction between ecosystems, wildlife, domestic livestock and society occurs amidst rapidly rising human populations and increasing urbanisation. Pertinent to the case studies is that from a developing country (specifically African) perspective, the current global health agenda has been criticised for its “narrow definition”, with claims that Africa-specific threats are being excluded in favour of the “the interests of high-income countries” (Hwenda *et al* 2011). As such, through examining the motivation for developing countries to contribute to the growing international drive for One Health, I recommend that calls within the literature for “greater sensitivity”²⁷⁴ towards developing countries during bilateral and multilateral negotiations be supported. It is only through restoring the confidence of developing

²⁷³ As was seen with SARS, as discussed in section 3.4.2

²⁷⁴ From Hwenda *et al* (1999)

countries in terms of their equal role in a global vision that One Health can be promoted.

Finally, international stakeholders and proponents of One Health need to be mindful of how their actions and recommendations appear to those responsible for policy implementation at the national and local levels. This is particularly true for developing countries, where narrowly focused “top down” policies often neglect the wider systems responsible for their implementation. Donor funds for a single health challenge have been shown to eclipse entire ministerial budgets in some cases²⁷⁵. More importantly, those driving One Health at the international level cannot advocate for the adoption of approaches which they themselves do not practice; intersectoral collaboration being a prime example. The following quotation captures beautifully that which I have witnessed on a number of occasions during high profile One Health advocacy gatherings:

“At the big meetings.....what inevitably happens is that WHO makes a little speech, David Nabarro makes a little speech, and the OIE too, who maintain their vigilant independence from the UN system....This sends the wrong message. The whole effort, the whole ethos of this has been to o-ordinate, to integrate. Yet when we get to tell the world how well we work together, we do it individually” (Scoones 2010:57)

Objective 4. Examine the types of evidence and advocacy necessary for the adoption of One Health as a global framework to address the disease challenges of the 21st century.

The actor-networks which mould health governance in the 21st century are complicated, hence my referral to the “precariousness” of the One Health approach in the first proposition. . WHO is still perceived as central to the current

²⁷⁵ For example the aforementioned case of HIV/AIDS funding in the Ugandan Ministry of Health

international health policy process; however the explosion of public private partnerships, philanthropic organisations and non-governmental bodies into international health policy has challenged traditional models of health delivery in recent years.

Amidst the flurry of international stakeholders and networks participating in One Health meetings, programmes and academic courses across the globe, a growing acknowledgment for “One Health governance” has arisen. A working group formed at the 2010 Stone Mountain meeting outlined the formation of a One Health Global Network to promote the approach and garner international support, whilst maintaining One Health could not be “owned” or dominated by any one organisation or institute. It cannot be denied that the One Health movement has to date been largely driven by western powers, in particular north America and Europe, with technical endorsement from the OIE-WHO-FAO agency tripartite. Whilst high profile International Ministerial Conferences on pandemic influenza viruses have been held in Beijing, Hanoi and Egypt amongst others, specific events aimed at garnering political and financial support for One Health have been hosted largely by the west; for example the WCS Global Symposium, Winnipeg, Stone Mountain, Melbourne, Atlanta and Davos meetings²⁷⁶.

For One Health to progress into the desired international collective action however, international agencies and associated stakeholders need to show a united front; in the absence of a global government, policy makers are more likely to heed the

²⁷⁶ See Annex 1

recommendations of an epistemic community if they “represent a consensus of opinion” (Sutton 1999). This is undoubtedly where the strength of the OHGN lies, however the current anonymity surrounding its leadership contrasts much of the current governance theory. Discussions around endorsement of the OHGN in order to increase its credibility, particularly in the eyes of the policy makers, are yet to result in a clear way forwards; however a strong platform is needed to enable the epistemic community to communicate united options to policy makers in future.

Regarding advocacy for One Health at the national level, the first important observation is that One Health has long been deemed the domain of the veterinary sector, which has repercussions for issue prioritisation. It could be that zoonotic diseases are largely seen to be the responsibility of animal health specialists as a result of the “herd population” versus “individual patient” rhetoric surrounding veterinary and human medicine respectively. Other theories may be that human health policy is dominated by the “big three” in most developing countries, whilst livestock sector policies are influenced by OIE discourse surrounding disease eradication, often described as the “safe trading in livestock” narrative (IDS 2006, Turner 2005)²⁷⁷. This lack of crossover ultimately leaves little room for the prioritisation of nationally relevant diseases or environmental issues which would be of prime interest to all sectors.

The creation of permanent One Health structures for zoonoses control, whilst desirable as a politically endorsed “glue” to hold everything together, will ultimately

²⁷⁷ See section 4.6.3 in Chapter Four

need to weather the inter-ministerial “turf wars”²⁷⁸ which will likely emerge as a result of ministries attempting to maintain control over resources and policy arenas. In Nigeria, a “stakeholders’ zoonosis committee” has been set up with representatives from both ministries to discuss the control and management of neglected zoonotic disease. However when further probed, the official responsible for its implementation showed frustration due to lack of formal endorsement by the federal government;

“I set it up so well, but then again, you know, when you plan activities and you can’t carry them out because you don’t have the funds it becomes so frustrating, so I decided to step aside as we had no encouragement per se, to move further”. (Interview NMoH March 2011)

This final example serves to pertinently illustrate how One Health will not “just happen”, as is the current expectation by many advocates of the concept. The research in this thesis has highlighted some of the broad institutional changes required for One Health to become a permanent approach, and as such individual country needs cannot be underestimated, dismissed or prescribed in a “top down” manner by the international community. What is required instead is national assessment of countries’ individual One Health priorities, and the space and time for them to develop in order that regional and international health priorities can ultimately benefit from the Global Public Good that is One Health.

6.2 The Contribution of this Research

Understanding the approach towards the control of zoonotic disease in developing countries is particularly important given the fragmented human and animal health

²⁷⁸ As discussed in Sutton (1999)

systems in these countries, and the potential effect of this on their ability to deal with high profile outbreaks such as that which occurred in Nigeria in 2006. Moreover, the high amount of financial and human resources afforded to various One Health approaches since the emergence of H5N1 HPAI suggests this to be a timely analysis of the events of the last decade. This section therefore serves to underline the intellectual contribution of my research to the existing body of work undertaken on policy and practice in the developing country context. To my knowledge, the detailed multi-country, multi-level case study used to obtain my empirical data is a unique approach to public health research in developing countries, and the only study thus far to examine the rhetoric behind the currently high profile One Health movement.

The penultimate aim of this thesis was to provide a critical reflection of One Health based on my experiences being both “active implementer”²⁷⁹, and “observer” of the higher political and institutional processes occurring at the global level²⁸⁰. This “doubling up” of perspective, coupled with the fact that I lived and worked in Africa for a number of years prior to undertaking this research²⁸¹ maintains a unique perspective and justifies my contribution to the “social anthropology of development”²⁸². A thorough literature review failed to reveal any recent work regarding a critical analysis of public health policy in developing countries; while research into the logistics of intersectoral collaboration for zoonotic disease control

²⁷⁹ Through my involvement with the two public health projects in sub-Saharan Africa: ICONZ and SOS

²⁸⁰ Through my association with the One Health Global Network (OHGN)

²⁸¹ Thus in some ways I could be seen as an additional “informer” based on my previous experiences; a concept pertinently discussed in Mosse (2005) where he acknowledges the “unusual type of social research” undertaken through his retrospective examination of a 10 year Indian development project, describing it as “an ethnography in which I am the principle informant”

²⁸² From Mosse (2005)

in sub-Saharan Africa appears to be nonexistent. Based on the experiences of Mosse (2005), whose similarly critical approach was cited by some as “unfair and disrespectful....too negative”, I am reassured, as Mosse was, by Latour’s view that successful objectivity “maximises the capacity for actors to object”²⁸³. Ultimately, understanding the policy process in order to accurately describe One Health’s current position and future potential necessitated the adoption of critical distance; compared to simply advocating for One Health which would have justified a more normative view.

In terms of theoretical framework, the large body of research around environmental policy processes undertaken by Sussex University’s Institute of Development Studies (IDS)²⁸⁴ is particularly relevant to this thesis. Highlighted by Young (2005) as one of the few attempts to understand policy process theory outside the OECD context, the IDS approach to examining policy in the context of its narratives, actor-networks and external politics and interests²⁸⁵ helped focus my analysis of the empirical data. It also enabled me to contribute an alternative perspective to previous health policy research, which appears driven by an instrumental perspective, as found in the influx of work around health policy reform in developing countries during the 1990’s²⁸⁶.

Of particular relevance to the broader implications of my research to policy and practice is the evidence contained within this thesis which largely aligns with Mosse’s observation that “relationships, interests and cultures of specific

²⁸³ Latour (2000), cited in Mosse (2005:ix)

²⁸⁴ See for example IDS (2006), Keeley and Scoones (1999)

²⁸⁵ Detailed in IDS (2006) and Wolmer and Scoones (2005) and Keeley and Scoones (1999)

²⁸⁶ See for example Walt and Gilson (1994) and Gilson and Mills (1995)

organisational settings” shape development practice, rather than policy per se (Mosse 2005:230). Mosse infers that whilst donors understand “how their own institutional relations and practices are concealed within the coherent policy papers they produce”, other stakeholder groups use policy to simply provide “authoritative interpretation” of what is happening on the ground (Mosse 2005:230). As was pertinent in the evidence within this thesis, what occurs on the ground in many developing countries largely reflects wider social, political and economic pressures, rather than what the policy states, and in the case of public health, often with dramatic consequences²⁸⁷. I maintain the difficulty of defining and describing policy discussed in section 2.3.1 (page 45) still holds, however in a way that I found surprising. At one end of the continuum, the perspective of ministerial informants that policy is a “rational, linear process” was subsequently shown to be largely inaccurate in practice, both at the ministerial level and from the community perspective. However the sentiment that “policy is a chaos of purposes and accidents”²⁸⁸, whilst I feel to be valid to some extent in a general context, does not describe the total picture in many developing countries, given the major stake of international donors in the policies of countries such as Nigeria and Uganda²⁸⁹.

In summary, the major contribution of this thesis to the literature therefore occurs on a number of levels. Firstly, the evidence helps develop a greater understanding of public health policy process in developing countries, particularly in light of intersectoral collaboration for zoonotic disease control. Secondly, the research

²⁸⁷ For example that described surrounding HAT in Uganda

²⁸⁸ From Clay and Schaffer (1984: 192), cited in Wolmer and Scoones (2005)

²⁸⁹ The major stake of international donors in Ugandan policy has been a focus of previous literature, for example Okuonze and Macrae (1995)

highlights certain aspects important to the implementation of One Health, particularly in sub-Saharan Africa but potentially for any setting experiencing similar challenges to those described within the human and animal health systems in Nigeria and Uganda. Finally, I feel a fair assumption could be made that top down, donor-driven policies such as that which occurs across the health sectors (and to a lesser degree in the agricultural sectors of developing countries) may not ensure long term participation in the One Health movement in these countries. Good personal relationships, rather than policy, appear to drive the type of intersectoral collaboration necessary for control in an outbreak situation. Whilst the international response to HPAI can certainly be accredited with strengthening these relationships, collaboration and co-operation has been shown to all but cease in the absence of external funding. The exception to this can be found in Uganda, where despite the management difficulties, COCTU has demonstrated that a formal, politically endorsed platform could aid the long term commitment to adoption of a One Health approach for control of the endemic zoonoses, and thus help implement a local perspective. In this way, the research within this thesis ultimately goes some way to providing support to the “alternative” One Health narratives in order to address endemicity and other aspects of Scoones’ (2010:209) “ten challenges for the way ahead” for One Health.

6.3 Conclusion

The crux of One Health success lies in the continued and growing recognition of the role played by animals in human lives, acknowledged by the “modern advocate of One Medicine”²⁹⁰ Calvin Schwabe;

"The final objective of veterinary medicine does not lie in the animal species that the veterinarian commonly treats. It lies very definitely in man, and above all in humanity." (Schwabe 1984)

Whilst spending on human health attracts “strong moral and empathetic support, leading to significant funding being directly funnelled to health ministries”, the case of ‘who pays’ for zoonotic disease control is not as clear (Okello *et al* 2011). Informal alliances outside official policy processes such as personal working relationships between individuals from the health and agricultural ministries, and short term technical platforms during outbreaks may work on a small scale in the short term. However, if One health is to become the “new health paradigm” for addressing long term the health problems of the 21st century, it is anticipated a degree of formal endorsement, governance and financial backing will be necessary.

Ultimately, the “ecosystems” perspective is still limited or absent from the majority of One Health policy discourse. Despite further competition for finite resources with greater numbers of stakeholders or networks involved in the approach, the issues touched upon at the beginning of this thesis such as habitat destruction, unsafe trading of animals, unsustainable use of natural resources and climate change are all valid to One Health. Arguments over which disease and where the next pandemic

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will emerge from will continue to grow in urgency unless such upstream causes of disease emergence are ultimately addressed. In future, One Health would benefit from increased association with programmes and research into ecosystem services and the wider environmental impacts of anthropogenic²⁹¹ actions. The “One Health as a Global Public Good” policy narrative would also make more sense in a holistic environmental context rather than one limited to the GPG of infectious disease.

In conclusion, the words of Dr. S.K Lam pertinently summarise the challenges ahead for the sustained adoption of a One Health approach into the future, particularly from the perspective of developing countries towards which this thesis contributes:

“While the One Health Initiative is to be lauded, the solutions may not lie in the implementation of methods found suitable for the developed world. One size does not fit all here. What is to replace deforestation, open burning or free range poultry farming? A more pragmatic and innovative approach as well as a paradigm shift needs to be implemented to enable any hope that this noble initiative will turn from a dream to a reality” (Lam 2010)

BIBLIOGRAPHY

Abbass, I (2010) “No retreat no surrender: Conflict for survival between fulani pastoralists and farmers in northern Nigeria”, *European Scientific Journal*, Vol. 8 No. 1 pp 331-346 available at http://www.abu.edu.ng/publications/2012-06-07-133920_5712.pdf (last accessed 3rd July 2012)

Aberman, N, Schiffer, E, Johnson, M and Oboh V (2009) “Mapping the Policy Process in Nigeria: Examining Linkages between Research and Policy”, Nigeria Strategy Support Programme (NSSP) Background Paper 12, November 2009, International Food Policy Research Institute (IFPRI)

Abubaker, A.A, Idris, S.H, Sabitu, K., Shehu A.M., Sambo, M.N (2010) “Emergency preparedness and the Capability to Identify Outbreaks: A Case Study of Sabon Gari Local Government Area, Kaduna State”, *Annals of Nigerian Medicine*, Vol. 4, Issue 1, pp 21-27

Adebayo, O.O, Olaniyi, O.A (2008) “Factors Associated with Pastoral and Crop Farmers Conflict in Derived Savannah Zone of Oyo State, Nigeria”, *Journal of Human Ecology*, Vol. 23, No. 1, pp 71-74

Allen, T, Parker, M (2011) “The ‘Other Diseases’ of the Millennium Development Goals: rhetoric and reality of free drug distribution to cure the poor's parasites”, *Third World Quarterly*, Vol. 32, Issue 1, pp 91-117

American Veterinary Medical Association (AVMA) (2008), “*One Health: A new Professional Imperative*”, One Health Initiative Task Force: Final Report <http://www.avma.org/onehealth/> (Accessed online 7th May 2010)

Anon. (2011) “Stamping Out Sleeping Sickness (SOS) in Soroti and Serere District (August 2010 – December 2010)” Phase II Field Report, Research Into Use Project Documents, January 2011

Anon. (2011b) “SOS RIU Project Notes – March 8th 2011”, Research Into Use Project Documents, March 2011

Beijing Declaration (2006), Made at the International Pledging Conference on Avian and Human Pandemic Influenza (Annex III) <http://siteresources.worldbank.org/PROJECTS/Resources/40940-1136754783560/beijingdeclaration.pdf> (Last accessed 2nd July 2012)

Bell, R, Taylor, S and Marmot, M (2010) “Global Health Governance: Commission on Social Determinants of Health and the Imperative for Change” *Journal of Law, Medicine & Ethics* 470-485

Blaikie, N (2010) *Designing Social Research (2nd Edition)*, Polity Press USA, ISBN-13: 978-0-7456-4337-3

Blench, R, Chapman, R., Slaymaker T (2003) “A Study of the Role of Livestock in Poverty Reduction Strategy Papers” PPLPI Working Paper No.1, FAO Pro-poor Livestock Policy Initiative, available at <http://www.fao.org/ag/againfo/programmes/en/pplpi/workingpapers.html> (last accessed 15th June 2012)

Blench, R (2010) “Conflict between Pastoralists and Croppers in Nigeria”, Review Paper prepared for DfID Nigeria, Cambridge, 9th August 2010 <http://www.rogerblench.info/Development/Nigeria/Pastoralism/Fadama%20II%20paper.pdf> (last accessed 15th June 2012)

Bolajoko M. B, Moses G. D., Gambari-Bolajoko K. O., Ifende V. I, Emenna P., Bala, A (2011) “Participatory rural appraisal of livestock diseases among the Fulani community of the Barkin Ladi Local Government Area, Plateau State, Nigeria”, *Journal of Veterinary Medicine and Animal Health*, Vol. 3, no. 1, pp. 11-13

Brown, T, M, Cueto, M, Fee, E (2006) “The World Health Organization and the Transition From International to Global Public Health”, *American Journal of Public Health*, Vol 96, No. 1, pp 62-72

Brundtland, G.H (2001), speech given at the United Nations Association’s Global Leadership Awards www.who.int/directorgeneral/speeches/2001/english/20010419_UNAawardsdinnernewyork.en.html (last accessed July 7th 2012)

Burawoy, M (1998) “The Extended Case Method”, *Sociological Theory*, Vol. 16, No. 1, pp 4-33

Butcher, C (2009) “From research into use: Monitoring and Evaluation of a Public Private Partnership”, Synthesis Report, Stamp Out Sleeping Sickness Case Study, Research into Use Project Documents

Butcher, C (2009b) “Sleeping Sickness Communication Evaluation Baseline Survey, 2006 and Intervention Survey for Animal Treatment and Sleeping Sickness 2007”, Summary of Steadmans / Wren Media Report / University of Edinburgh, Working Paper No.: 32, 19th August 2009

Canning, D (2006) “Priority setting and the ‘neglected’ tropical diseases”, *Transactions of the Royal Society of Tropical Medicine and Hygiene*, No.100, pp 499-504

Cardiff, R.D., Ward, J.M., Barthold, S.W (2008) “‘One Medicine-One Pathology’: Are veterinary and human pathology prepared? *Laboratory Investigation*, Vol. 88, pp18-26

Cattand, P, Simarro, P, Jannin, J, Ly, C, Shaw, A and Mattioli, R (2010), Linking sustainable human and animal African trypanosomiasis control with rural

development strategies, No. 10 PAAT Technical and Scientific Series, FAO ISBN 978-92-5-106670-6

Cavalli A, Bamba SI, Traore MN, Boelaert M, Coulibaly Y (2010) “Interactions between Global Health Initiatives and Country Health Systems: The Case of a Neglected Tropical Diseases Control Program in Mali”, *PLoS Neglected Tropical Diseases*, Vol 4, No. 8: e798. doi:10.1371/journal.pntd.0000798

CGIAR (2012) History of the CGIAR available at <http://www.cgiar.org/who/history/index.html> (last accessed 24th May 2012)

Chambers, R (1983) *Rural Development: putting the last first*. Harlow: Longman

Chambers, R, Pacey, A, Thrupp, L-A (1989) *Farmer first: farmer innovation and agricultural research*. Intermediate Technology Publications, London

Chandler, C (2009) ACT Consortium Manual for Qualitative Data Analysis, ACT Guidance Notes (social research)

http://www.actconsortium.org/data/files/act_consortium_qualitative_data_analysis_manual_v02.pdf

(last accessed 2nd July 2012)

Clark, W.C., Szlezak, N.A, Moon, S., Bloom, B.R., Keusch G.T., Michaud C.M., Dean T. Jamison, D.T., Frenk, J., Kilama, W.L (2010) “The Global Health System: Institutions in a Time of Transition.” CID Working Paper No. 193. Center for International Development, Harvard University

Collins, A (ed.) 2007, *Contemporary Security Studies*, 2nd Edition. Oxford University Press, New York; Oxford. Available at http://www.oup.com/uk/orc/bin/9780199548859/01student/cases/collins2e_disease.pdf (last accessed 15th June 2012)

DANIDA (2005) *Uganda’s Plan for the Modernisation of Agriculture – Evaluation Summary*, Ministry of Foreign Affairs of Denmark Evaluation Department, www.evaluation.dk

de Bruijn, M. (1997) “Hearth hold in Pastoral Fulbe Society, Central Mali: Social Relations, Milk and Drought”, *Journal of the International African Institute*, Vol. 67, No. 4, pp. 625-651

Delgado, C., Rosegrant, M., Steinfeld, H., Ehui, S. K. & Courbois, C. (1999) *Livestock to 2020: the next food revolution*. Food, Agriculture, and the Environment Discussion paper 28. International Food Policy Research Institute

Diamond, J, (1997), *Guns, Germs and Steel*, W.W. Norton, New York, p197

Economist, The 24th February 2011, *Rambo Reigns*, available at www.economist.com/node/18236940 (last accessed 15th June 2012)

Ekboir, J (2009) “The CGIAR at a Crossroads: Assessing the role of international agricultural research in poverty alleviation from an innovation systems perspective”, CGIAR Institutional Learning and Change (ILAC) Initiative Working Paper 9, available at www.cgiar-ilac.org (last accessed 15th June 2012)

EMPRES (2006) HPAI Nigeria Situation Update, available at <http://www.fao.org/docs/eims/upload//199578/EMPRES-Watch.HPAI.Nigeria.pdf> (last accessed 28/02/2012)

England (2007) “Are we spending too much on HIV?” *British Medical Journal*, Vol. 334, p344

[Enwezor F. N.](#), [Umoh J. U.](#), [Esievo K. A.](#), [Halid I.](#), [Zaria L. T.](#), [Anere J.I](#) (2009) “Survey of Bovine Trypanosomiasis in the Kachia Grazing Reserve, Kaduna State, Nigeria”, *Veterinary Parasitology*, Vol 159, Issue 2, pp 121-125

Ezeomah, C (1985) “Land Tenure Constraints Associated With Some Recent Experiments to Bring Formal Education to Nomadic Fulani in Nigeria”, Overseas Development Institute (ODI) Agricultural Administration Unit, Paper 20D August 1985

Fabusoro, E (2007) “Key issues in livelihoods security of migrant Fulani pastoralists: Empirical evidence from southwest Nigeria”, Paper presented at “*African Alternatives: Initiative and Creativity beyond Current Constraints*” AEGIS European Conference on African Studies, 11 - 14 July 2007, African Studies Centre, Leiden, The Netherlands

FAO (2003) “Veterinary Public Health and control of zoonoses in developing countries”, Summary of comments and discussion from the FAO/WHO/OIE Electronic Conference, FAO Corporate Document Repository

FAO (2008) in collaboration with the OIE/WHO/UNICEF/World Bank and UN system Influenza Coordination (2008) “Contributing to One World, One Health: A strategic Framework for Reducing the Risks of Infectious Diseases at the Human-Animal-Ecosystems Interface”, Presented as a Consultation Document at the International Ministerial Conference on Avian and Pandemic Influenza at Sharm El-Sheikh, Egypt

Federal Republic of Nigeria (2006) Avian Influenza Control And Human Pandemic Preparedness And Response Project, Implementation Plan

Fèvre, E.M, Coleman, P.G, Odiit, M, Magona, J.W, Welburn, S.C, Woolhouse, M.E.J (2001) “The origins of a new *Trypanosoma brucei rhodesiense* sleeping sickness outbreak in eastern Uganda”, *Lancet*; Vol. 358, pp 625–628

Fèvre, E.M., Picozzi, K., Fyfe, J., Waiswa, C., Odiit, M., Coleman, P.G., & Welburn, S.C. (2005) “A burgeoning epidemic of sleeping sickness in Uganda”, *The Lancet*, Vol. 366, pp 745-747

- Fèvre, E.M., Odiit, M., Coleman, P.G., Woolhouse, M.E.J. & Welburn, S.C. (2008) “Estimating the burden of *rhodesiense* sleeping sickness during an outbreak in Serere, eastern Uganda”, *BMC Public Health*, Vol. 8, p96
- Fidler, D (2001) “The globalisation of public health: the first 100 years of international health diplomacy”, *Bulletin of the World Health Organisation*, Vol.79, pp 842-849
- Fidler, D (2003) “SARS: political pathology of the first post-Westphalian pathogen”, *Journal of Law Medicine and Ethics*, Vol. 31, pp 485–505
- Fidler, D (2004) “Germs, governance and global public health in the wake of SARS”, *Journal of Clinical Investigation*, Vol. 113, No.6, p799-804
- Garrett, L, Alavian, E (2010) “Global health governance in a G20 world” *Global Health Governance*, Volume IV, No. 1 (FALL 2010) available at <http://www.ghgj.org> (last accessed 15th June 2012)
- Gibbs, P (2003) “The Foot-and-Mouth Disease Epidemic of 2001 in the UK: Implications for the USA and the “War on Terror”” *Journal of Veterinary and Medical Education*, Vol. 30, No. 2 pp121-132
- Gibbs, E.P.J (2005), “Emerging zoonotic epidemics in the interconnected global community”, *The Veterinary Record*, Vol 157, pp 673-679
- Gilson, L., Mills, A (1995) “Health sector reforms in sub-Saharan Africa: lessons of the last 10 years” *Health Policy*, Vol.32, Issue 1 , pp 215-243
- Godlee, F (1994) “WHO in retreat; is it losing its influence?” *British Medical Journal* Vol. 309 pp 1491–1495
- Government of Nigeria Vision 2020 http://www.npc.gov.ng/vault/files/NV2020-NIP-Volume-II-Original-document_edited_versioin3_10_06_2010.pdf (last accessed 2nd July 2012)
- Government of Uganda Animal Diseases Act, available at http://www.vertic.org/media/National%20Legislation/Uganda/UG_Animal_Diseases_Act_1918.pdf (last accessed 3rd July 2012)
- Government of Uganda (2001) Uganda’s National Policy for the Delivery of Veterinary Services
- Government of Uganda (2003) National Agricultural Advisory Services Soroti Baseline Report
- Government of Uganda (2004) Poverty Eradication Action Plan (PEAP) 2004/5-2007/8, Ministry of Finance, Planning and Economic Development, Kampala www.finance.go.ug

Government of Uganda (2010) Ugandan National Development Plan 2010-2015
http://siteresources.worldbank.org/INTPRS1/Resources/Uganda_PRSP.pdf

Grépin, K.A, Reich, M.R (2008) “Conceptualizing Integration: A framework for analysis applied to neglected tropical disease control partnerships”, *PLoS Neglected Tropical Diseases*, Vol 2, Is 4, p 174-8

Hanoi Declaration <http://un-influenza.org/node/4040> (last accessed 3rd July 2012)

Hide G, Tait A, Maudlin I, Welburn SC (1996) “The origins, dynamics and generation of *Trypanosoma brucei rhodesiense* epidemics in East Africa” *Parasitology Today* Vol. 12, pp 50–55

Hotez, P.J, Fenwick, A., Saviolo, L., Molyneux, D.H (2009) “Rescuing the bottom billion through control of neglected tropical diseases”, *Lancet*, 373, pp 1570-75

Hotez PJ, Fenwick A (2009b) “Schistosomiasis in Africa: An Emerging Tragedy in Our New Global Health Decade”. *PLoS Neglected Tropical Diseases*, Vol 3, No. 9: e485. doi:10.1371/journal.pntd.0000485

HRW (2001) “Jos: A city Torn Apart”, *Human Rights Watch Reports*, Vol.13, No.9
<http://www.hrw.org/reports/2001/12/18/jos-0> (last accessed 15th June 2012)

HRW (2006) “They do not own this place”: Government Discrimination against “non-indigenes” in Nigeria” *Human Rights Watch Report*, Vol.18, No.3,
<http://www.hrw.org/reports/2006/04/25/they-do-not-own-place> (last accessed 15th June 2012)

HRW (2009) “Arbitrary Killings by Security Forces”, *Human Rights Watch Reports*,
<http://www.hrw.org/reports/2009/07/20/arbitrary-killings-security-forces-0> (last accessed 15th June 2012)

HRW (2011) Human Rights Watch World Report, Uganda: 2011, available at
<http://www.hrw.org/world-report-2011/uganda> (last accessed 15th June 2012)

Hwenda, L, Mahlathi, P and Maphanga, T (2011) “Why African Countries Need to Participate in Global Health Security Discourse”, *Global Health Governance*, Volume IV, No. 2 (SPRING 2011) available at <http://www.ghgj.org> (last accessed 15th June 2012)

ICONZ (2011), Kachia Grazing Reserve March 2011 Review of Fieldwork, ICONZ Nigeria case study documents, available at
<http://www.iconzafrica.org/Document.mvc/Group/20>
(last accessed 14th June 2012)

IDS (2006) *Understanding Policy Processes: A Review of IDS Research on the Environment*, available at

http://www.dfid.gov.uk/r4d/pdf/thematicsummaries/understanding_policy_processes.pdf
(last accessed 3rd July 2012)

ILO (2009) International Labour Office/African Commission on Human and People's Rights "Nigeria: constitutional, legislative and administrative provisions concerning indigenous peoples" ILO Publications, Geneva

Ingawa, S.A, Tarawali, G and von Kaufmann, R (1989) "Grazing Reserves in Nigeria: Problems, Prospects and Policy Implications", African Livestock Policy Analysis Network, Network Paper no. 22, December 1989

Iro, I. "From nomadism to sedentarism: An analysis of development constraints and public policy issues in the socioeconomic transformation of the pastoral Fulani of Nigeria" <http://www.gamji.com/fulani1.htm> (accessed 6th June 2010)

Jones, B, Grace, D *et al* (2011), *Zoonoses: Wildlife/domestic Livestock Interactions*, International Livestock Research Institute (ILRI), Final Report for the Department of International Development, UK available at http://www.dfid.gov.uk/r4d/pdf/outputs/livestock/60877-dfid_final25-9-2011.pdf
(last accessed 15th June 2012)

Kapiriri, L., Norheim, O.F, Heggenhougen, K. (2003) "Public participation in health planning and priority setting at the district level in Uganda", *Health Policy And Planning*; Vol. 18, No.2 pp205–213 doi: 10.1093/heapol/czg025

Kaplan, B (2006) "More on the need for comparative medicine", *Journal of the American Veterinary Medical Association*, Vol. 229, No. 4, p 498

Kaufman, J.R, and Feldbaum, H. (2009) "Diplomacy and the Polio Immunization Boycott in Northern Nigeria", *Health Affairs*, Vol 28, No.4 pp 1091-1101 [doi: 10.1377/hlthaff.28.4.1091]

Kaufmann, R, Chater, S, Blench, R (1986) *Livestock Systems Research in Nigeria's Subhumid Zone: Proceedings of the second ILCA/NAPRI Symposium held in Kaduna/ Nigeria, 29 October - 2 November 1984*, International Livestock Centre For Africa (ILCA) Available At: <http://www.fao.org/wairdocs/ilri/x5463e/x5463e00.htm#contents> (last accessed 3rd July 2012)

Kaw, B.C (2003), "Nipah virus outbreak in Malaysia", *Journal of Clinical Virology*, Vol. 26, Issue 3, pp 265-75

Keeley, J. E. (2001) *Influencing Policy Processes for Sustainable Livelihoods: strategies for change Lessons for Change in Policy & Organisations*, No. 2. Brighton: Institute of Development Studies

Keeley, J and Scoones, I (1999) “Understanding Environmental Policy Processes: A Review”, *IDS Working Paper 89*, Environment Group, Institute Of Development Studies, University Of Sussex

Kickbusch, I (2000) “The Development of International Health Priorities - Accountability Intact?” *Social Science & Medicine* Vol.51, pp 979–989

King, L.J, Marano, N., Hughes, J.M (2004), “New partnerships between animal health services and public health agencies”, *Rev. sci. tech. Off. int. Epiz.*, Vol 23, No.2, pp 717-26

Kitzinger, J (1995) “Introducing Focus Groups”, Qualitative Research Series, *British Medical Journal*, Vol. 311, pp 299-302

Kristjanson, P.M., Swallow, B.M., Rowlands, G.J., Kruska, R.L. & de Leeuw, P.N. (1999) “Measuring the costs of African animal trypanosomiasis, the potential benefits of control and returns to research” *Agricultural Systems*, Vol.59, pp 79–98.

Lam, S.K (2010) “One World, One Health – An utopian dream or a Reality?” Article in the One Health Online Newsletter
<http://www.onehealthinitiative.com/newsletter.php>
(accessed 8th April 2010)

Leboeuf, A, Broughton, E (2008) “Securitization of Health and Environmental Issues: Process and Effects. A research outline”, Health and Environment Working Document, Institut Français des Relations Internationales (Ifri), ISBN: 978-2-86592-305-2

Lee, K, Collinson, S, Walt, G, Gilson, L (1996) “Who Should be doing what in International Health: A Confusion of Mandates in the United Nations?” *British Medical Journal*, Vol. 312, pp 302-7

Litsios, S (1997) “Malaria control, the cold war, and the postwar reorganization of international assistance”, *Medical Anthropology: Cross-Cultural Studies in Health and Illness*, Vol. 17, No.3, pp255-278

Madigan, E (2003) “Monkeypox Outbreak reveals gaps in State Laws”
<http://www.stateline.org/live/ViewPage.action?siteNodeId=136&languageId=1&contentId=15298> (accessed 16th June 2010)

Manhattan Principles (2004), Annex II: Extracted from FAO (2008), Annex 1, p51

Marchal B, Cavalli A, Kegels G (2009) “Global Health Actors Claim To Support Health System Strengthening—Is This Reality or Rhetoric?” *PLoS Med* Vol. 6, No. 4: e1000059. doi:10.1371/journal.pmed.1000059

- Marietu, T, Olarewaju, I.O (2009) “Resource conflict among farmers and Fulani herdsman: Implications for resource sustainability” *African Journal of Political Science and International Relations* Vol. 3, Issue 9, pp. 360-364
- Martin, V, Forman, A, Lubroth, J (2006) *Preparing for highly Pathogenic Avian Influenza: A Manual for countries at risk*, FAO, available at http://www.fao.org/docs/eims/upload/200354/HPAI_PreparednessManual.pdf (last accessed 3rd July 2012)
- Maudlin, I, Eisler, M.C, Welburn, S.C (2009) “Neglected and endemic zoonoses”, *Philosophical Transactions of the Royal Society B*, No. 364, pp 2777-87
- McMichael, A.J, Beaglehole, R (2000) “The changing global context of public health”, *Lancet* Vol. 356, pp 495–99
- Molyneux, D.H, Malecela, M.N (2011) “Neglected Tropical Diseases and the Millennium Development Goals-why the “other diseases” matter: reality versus rhetoric”, *Parasites & Vectors*, Vol. 4:234
- Molyneux D, Ndung’u, J., Maudlin I (2010) “Controlling Sleeping Sickness – When Will They Ever Learn?” *PLoS Neglected Tropical Diseases*, Vol. 4, Issue 5, e609 doi:10.1371/journal.pntd.0000609
- Molyneux, D.H (2008) “Combating the “other diseases” of MDG 6: changing the paradigm to achieve equity and poverty reduction?” *Transactions of the Royal Society of Tropical Medicine and Hygiene*, Vol 102, pp509-19
- Morton, J (2010) “The Innovation Trajectory of Sleeping Sickness Control in Uganda: Research Knowledge in its Context, *Research Into Use Discussion Paper 08* available at <http://www.researchintouse.com/resources/riu10discuss08ssickcntrl-ug.pdf> (last accessed 14th June 2011)
- Mosse, D. (2005) *Cultivating Development: An Ethnography of Aid Policy and Practice*. London: Pluto Press
- Ng, N, Ruger, J.P (2011) “Global Health Governance at a Crossroads”, *Global Health Governance*, Volume III, No.2 (Spring 2011) available at <http://www.ghgj.org> (last accessed 15th June 2012)
- Nori, M, Kenyanjui, M.B, Mohammed Ahmed Yusuf, M.A, Mohammed, F.H (2006) “Milking drylands: the marketing of camel milk in North East Somalia” *Nomadic Peoples* Vol. 10, No. 1
- Normandeau (2011) *Atlanta Report 2011: Expert Meeting on One Health Governance and Global Network*, October 31-November 1st 2011, Atlanta, USA available at http://eeas.europa.eu/health/docs/2011_report-experts-atlanta_en.pdf (last accessed 30th May 2012)

Odiit M, Coleman PG, Liu WC, McDermott JJ, Fevre EM, et al. (2005) “Quantifying the level of under-detection of *Trypanosoma brucei rhodesiense* sleeping sickness cases”, *Tropical Medicine International Health*, Vol 10, pp840–849

Ogurinade, A, Ogurinade, B (1980) “Economic Importance of Bovine Fascioliasis in Nigeria”, *Tropical Animal Health and Production*, Vol.12, p55-60

Okello (2011) *Stamp Out Sleeping Sickness: An Innovative Public-Private Partnership for the Control of Neglected Zoonotic Disease in Uganda*, Presentation at the First International One Health Congress, Melbourne, Australia February 2011

Okello, AL, Gibbs, EPJ, Vandersmissen, A, Welburn SC (2011), “One Health and the Neglected Zoonoses: Turning Rhetoric into Reality”, *Veterinary Record*, Vol. 169, pp 281-285 doi: 10.1136/vr.d5378

Okunzi, S.A, Macrae J (1995) “Whose policy is it anyway? International and national influences on health policy development in Uganda”, *Health Policy and Planning*, Vol. 10, Issue 2, pp 122-132

Ollila, E (2005) “Global Health Priorities – Priorities of the Wealthy?” *Global Health* Vol.1, No. 6

Omamo, S.W. (2003) “Policy Research on African Agriculture: Trends, Gaps, and Challenges”, ISNAR Research Report 21. The Hague: International Service for National Agricultural Research

Omamo, S.W, Farrington, J (2004) “Policy research and African agriculture: Time for a dose of reality?” Overseas Development Institute (ODI) Natural Resource perspectives, No. 90

Osburn, B., Scott, C., Gibbs, P (2009) “One World - One Medicine – One Health: emerging veterinary challenges and opportunities” *Rev. sci. tech. Off. int. Epiz.* Vol. 28, No. 2, pp481-6

Oxby, C (1984) “Settlement Schemes for Herders in the Subhumid Tropics of West Africa: Issues of Land Rights and Ethnicity” *Development Policy Review*, Vol. 2, pp 217-33

Packard, R.M (1997) “Malaria dreams: Postwar visions of health and development in the third world”, *Medical Anthropology: Cross-Cultural Studies in Health and Illness*, Vol.17, No.3, pp279-296

Picozzi, K., Fevre, E.M., Odiit, M., Carrington, M., Eisler, M.C., Maudlin, I., Welburn, S.C., (2005). “Sleeping sickness in Uganda: a thin line between two fatal diseases” *British Medical Journal*, Vol 331, pp 1238-1241

Reid, A.H, Fanning, T.G, Hultin, J.V., Taubenberger, J.K (1999), “Origin and evolution of the 1918 “Spanish” influenza virus haemagglutinin gene”, *Proceedings of the Natural Academy of Sciences*, Vol. 96, pp 1651-56

Riesman, P (1977) *Freedom in Fulani social life – An Introspective Ethnography*, University of Chicago, ISBN 0-226-71743-7

Rist, R.C (1994) “Influencing the Policy Process with Qualitative Research”, In N. Denzin & Y. Lincoln (Eds.) *Handbook of Qualitative Research* pp. 545-557, Thousand Oaks, CA: Sage Publications, Inc

<http://www.edstudies.net/files/active/0/resources-influencing.html> (last accessed 15th June 2012)

Schofield, C, Kabayo, J.P (2008) “Trypanosomiasis vector control in Africa and Latin America”, *Parasites & Vectors*, Vol 1, no. 24 doi: 10.1186/1756-3305-1-24

Schwabe CW (1984) *Veterinary medicine and human health*. Baltimore (USA): Williams & Wilkins; 1984.

Scoones, I (2010) *Avian Influenza: Science, Policy and Politics*, Earthscan UK, ISBN 978-1-84971-096-1

Scoones, I, Forster, P (2007) “International policy processes and HPAI (highly pathogenic avian influenza) A scoping study” First Phase Report for FAP PPLPI, STEPS Centre, Institute of Development Studies, University of Sussex, Brighton, UK

Sharrer, G.T (1995) “The great glanders epizootic, 1861-1866: A civil war legacy”, *Agricultural History*, Vol 69, No 1, pp79-97

Shaw, A (2009) “The socio-economic impact of the SOS programme on Human African Trypanosomiasis”, Research Into Use Project Documents, September 2009

Shinyekwa, I, Hickey, S (2007) PRS Review: Uganda Case Study, Background Paper for the Chronic Poverty Report 2008-2009, Publication of the Chronic Poverty Research Centre, available at

<http://www.chronicpoverty.org/publications/details/prs-review-uganda-case-study/ss> (last accessed 3rd July 2012)

Shuchman, M.D (2007) “Improving Global Health — Margaret Chan at the WHO”, *New England Journal of Medicine*, Vol 356, pp 653-656

<http://www.nejm.org/doi/full/10.1056/NEJMp068299>

Sierra, K (2009) CGIAR joint declaration , 8th December 2009 available at

http://www.cgiar.org/www-archive/www.cgiar.org/pdf/Business%20Meeting%202009/jointdeclar_final_jan2010.pdf

(last accessed 3rd July 2012)

- Simarro PP, Jannin J, Cattand P (2008) “Eliminating human African trypanosomiasis: Where do we stand and what comes next?” *PLoS Medicine*, Vol. 5, no. 2: e55, doi:10.1371/journal.pmed.0050055
- Silver, G.A (1998) “Editorial: International Health Services need an Interorganizational Policy”, *American Journal of Public Health*, Vol. 88, No. 5, pp 727-729
- Singer, P.A, Benatar, S.R, Bernstein, M, Daar, A. S *et.al* (2003) “Ethics and SARS: lessons from Toronto”, *British Medical Journal*, Vol 327, pp 1342-44
- Slovic, P (1987) “Perception of Risk”, *Science*, New Series, Vol. 236, Issue 4799, pp280-285
- Smith, R, Woodward, D, Acharya, A, Beaglehole, R, Drager, N (2004) “Communicable disease control: a ‘Global Public Good’ perspective”, *Health Policy and Planning*, Vol. 19, No. 5, p271-278 doi: 10.1093/heapol/czh032
- Smith, R.D, MacKellar, L (2007) “Global public goods and the global health agenda: problems, priorities and potential” *Globalization and Health*, Vol. 3 No. 9 doi:10.1186/1744-8603-3-9
- Smith, R (2003) “Global public goods and health”, *Bulletin of the World Health Organisation*, Vol. 81, No. 7, p 475
- Sridhar, D (2010) “Seven Challenges in International Development Assistance for Health and Ways Forward”, *Global Health Governance* Volume II, No.2 (Fall 2010) available at <http://www.ghgj.org> (last accessed 15th June 2012)
- Sridhar, D (2009) “Global Health - Who can lead?” Chatham House Publications, February 2009, pp 25-26, available at <http://www.chathamhouse.org/publications/twt> (last accessed 15th June 2012)
- Stark, J (2011) “Climate change and conflict in Uganda: the cattle corridor and Karamoja”, CMM Discussion Paper 3, USAID available at http://www.fess-global.org/Publications/Other/Climate_Change_and_Conflic_%20in_Uganda.pdf (last accessed 3rd July 2012)
- Steele, J.H (1964) “The socioeconomic responsibilities of veterinary medicine”, *Public Health Reports*, Vol 79, No. 7, pp 613-18
- Stevens, P (2004) “Diseases of Poverty and the 10/90 Gap”, International Policy Network Paper, available at <http://www.who.int/intellectualproperty/submissions/InternationalPolicyNetwork.pdf> (last accessed 3rd July 2012)
- Stoker, G (1998) “Governance as Theory: five propositions”, UNESCO 1998, Blackwell Publishers UK, ISSJ 155/1998

Stone Mountain Meeting Overview (2010) Operationalising *One Health: A Policy Perspective – Taking Stock and Shaping an Implementation Roadmap*, available at [http://www.influenzaresources.org/files/Stone Mountain Report 2010.pdf](http://www.influenzaresources.org/files/Stone_Mountain_Report_2010.pdf) (last accessed 3rd July 2012)

Sutton, R (1999) “The Policy Process: An Overview”, Working Paper 118, Overseas Development Institute, Chameleon Press Ltd, London SW18 4SG
ISBN 0 85003 417 5

Sze, S. (1998) “WHO: From small beginnings”, WHO Forum Interview, World Health Forum, Vol 9, pp 29-34

Taylor, A.L (2002) “Global governance, international health law and WHO: Looking towards the future”, *Bulletin of the World Health Organisation*, Vol. 80, pp 975-980

Taubenberger, J. K., Reid , A. H., Lourens, R. M., Wang, R., Jin, G. and Fanning, T. G. (2005) Characterisation of the 1918 influenza virus polymerase genes, *Nature*, Vol. 437, pp 889-893

Taylor L.H, Latham S.M, Woolhouse M.E (2001) “Risk factors for human disease emergence”, *Philosophical Transactions of the Royal Society*, 356 pp 983–989

Tripp, A.M (2004) “The changing face of authoritarianism in Africa: The case of Uganda”, *Africa Today*, Vol. 50, No. 3, pp 3-26

Torr, S.J., Maudlin, I. & Vale, G.A. (2007) “Less is more: restricted application of insecticide to improve the cost and efficacy of tsetse control”. *Medical and Veterinary Entomology Vol 21*, pp 53-64

Turner, R.L (2005) “Livestock, Liberalisation and Democracy: Constraints and Opportunities for Rural Livestock Producers in a Reforming Uganda”, PPLPI Working Paper No.29, FAO Pro-poor Livestock Policy Initiative, available at <http://www.fao.org/ag/againfo/programmes/en/pplpi/workingpapers.html> (last accessed 15th June 2012)

Tynan, A. C., Drayton, J.L (1988) “Conducting Focus Groups – A guide for first – time users”, *Managing Intellectual Property*, Vol 6, No.1, pp 5-9

UMoF (2010) Uganda’s Plan for the Modernisation of Agriculture, available at <http://api.ning.com/files/ffRLhO7x-pp8FfmIEFfaTgGP5wzeKG2UAhWQzkkYkM /PMAMaindocument.pdf> (last accessed 3rd July 2012)

USAID (2007) United States Agency for International Development, Nigeria Dairy Enterprise Initiative, 2004-2006, Final Report, Land O’Lakes Inc, St. Paul, USA

US Department of State: Background Note Nigeria
<http://www.state.gov/r/pa/ei/bgn/2836.htm> (last accessed 2nd July 2012)

U.S Department of State: Background Note Uganda
<http://www.state.gov/r/pa/ei/bgn/2963.htm> (last accessed 2nd July 2012)

Van der Zeijst, B.A.M (2008) “Infectious Diseases know no borders: A plea for more collaboration between researchers in human and veterinary vaccines”, Guest Editorial, *The Veterinary Journal*, No 178, pp 1-2

Vandersmissen, A (2011) Test Phase: Developing the One Health Global Network, Synthesis of replies to a test phase questionnaire, European External Action Service, August 2011

Vaughan, J.P, Mogedalb, S, Kruseb, S, Kelley, L, Walt, G, Wilde, K (1996) “Financing the World Health Organisation: global importance of extrabudgetary funds”, *Health Policy* Vol. 35, pp229-245

Waiswa C, and Kabasa, J.D (2009) “Historical Mapping of Events in the SOS Districts”, *RIU Project Documents*, 2009

Waiswa, C and Kabasa, J.D (2010) “Experiences with an In-Training Community Service Model in the Control of Zoonotic Sleeping Sickness in Uganda”, *Journal of Veterinary and Medical Education*, Vol 37, Issue 3, pp 276-281

Walt, G (1993) “WHO under Stress: Implications for Health Policy,” *Health Policy* Vol. 24 pp125–144

Walt, G., Gilson, L (1994) “Reforming the health sector in developing countries: the central role of policy analysis”, *Health Policy and Planning*, Vol. 9, Issue 4. pp 353-370

Waters-Bayer, A, Bayer, W (1994) “Coming to Terms: Interactions between immigrant Fulani cattle keepers and indigenous farmers in Nigeria’s subhumid zone”, *Cahiers d’études africaines*, Vol. 34, No. 133-135, pp 213-229

Welburn, S.C., Picozzi, K., Fèvre, E.M., Coleman, P.G., Odiit, M., Carrington M. & Maudlin, I. (2001) “Identification of human-infective trypanosomes in animal reservoir of sleeping sickness in Uganda by means of serum-resistance-associated (SRA) gene” *Lancet*, Vol 358, pp 2017–2019.

Welburn, S.C., Fèvre, E.M., Coleman, P.G. & Maudlin, I. (2004) “Epidemiology of Human African trypanosomiasis” In I. Maudlin, P. Holmes & M. Miles, (eds.) *The trypanosomiasis*, pp. 219–232, Wallingford, UK, CABI Publishing.

Welburn, S.C., Coleman, P.G., Maudlin, I., Fèvre, E.M., Odiit, M. & Eisler, M.C. (2006) “Crisis, what crisis? Control of Rhodesian sleeping sickness” *Trends in Parasitology*, Vol 22, pp 123–128

WHO International Health Regulations
http://whqlibdoc.who.int/publications/2008/9789241580410_eng.pdf (last accessed 6th January 2012)

WHO (2006) The control of neglected zoonotic diseases: A route to poverty alleviation. Report of a joint WHO/DFID-AHP Meeting, 20–21 September 2005, WHO Headquarters Geneva, Switzerland

WHO (2007) Global Plan to Combat Neglected Tropical Diseases, Strategic Framework 2008-2015
http://whqlibdoc.who.int/hq/2007/WHO_CDS_NTD_2007.3_eng.pdf

WHO (2008) “Zoonotic Diseases: A guide to establishing collaboration between animal and human health sectors at the country level”, Published in collaboration with the FAO and OIE, WHO Press

WHO (2009) Integrated Control of Neglected Zoonoses in Africa: Adapting the “One Health” concept. Report of a joint WHO/EU/ILRI/DBL/FAO/OIE/AU Meeting, 13-15 November 2007, ILRI Headquarters, Nairobi, Kenya

WHO (2011) The control of neglected zoonotic diseases: community based interventions for NZDs prevention and control: report of the third conference organized with ICONZ, DFID-RiU, SOS , EU,TDR and FAO with the participation of ILRI and OIE. 23-24 November 2010, WHO Headquarters, Geneva, Switzerland. ISBN 978 92 4 150252 8

Williams O.D, Rushton, S (2011) “Are the ‘Good Times’ Over? Looking to the Future of Global Health Governance”, *Global Health Governance*, Volume V, No. 1 (Fall 2011) available at <http://www.ghgj.org> (last accessed 15th June 2012)

Wolmer, W. and Scoones, I. (2005) *An introduction to policy processes* IDS: Brighton

World Bank Indicators: Percentage arable land Nigeria
<http://www.tradingeconomics.com/nigeria/arable-land-percent-of-land-area-wb-data.html> (last accessed 2nd July 2012)

World Bank Indicators: percentage arable land Uganda
<http://www.tradingeconomics.com/uganda/agricultural-land-percent-of-land-area-wb-data.html> (last accessed 2nd July 2012)

World Bank Data Profile: Nigeria
http://ddp-ext.worldbank.org/ext/ddpreports/ViewSharedReport?&CF=&REPORT_ID=9147&REQUEST_TYPE=VIEWADVANCED (last accessed 2nd July 2012)

World Bank Data and Statistics: Nigeria
<http://web.worldbank.org/WBSITE/EXTERNAL/COUNTRIES/AFRICAEXT/NIGERIAEXTN/0,,menuPK:368922~pagePK:141132~piPK:141109~theSitePK:368896,0,0.html> (accessed 2/7/12)

Yach, D, Bettcher (1998) “The Globalisation of Public Health, I: Threats and Opportunities” *American Journal of Public Health*, Vol. 88, No. 5, pp 735-738

Yach, D, Bettcher (1998) “The Globalisation of Public Health, II: The Convergence of Self-Interest and Altruism”, *American Journal of Public Health*, Vol. 88, No. 5, pp 738-741

Yakubu, Y, Junaidu A.U, Magaji, A.A, Salihu, M.D, Mahmuda, A and Shehu, S (2011) “One Health – The Fate of Public Health in Nigeria”, *Asian Journal of Medical Sciences*, Vol 3, Issue 1, pp 47-49

Yin, R. (1994) *Case Study Research: design and methods*. 2nd Edition, Thousand Oaks, California, Sage Publications, USA

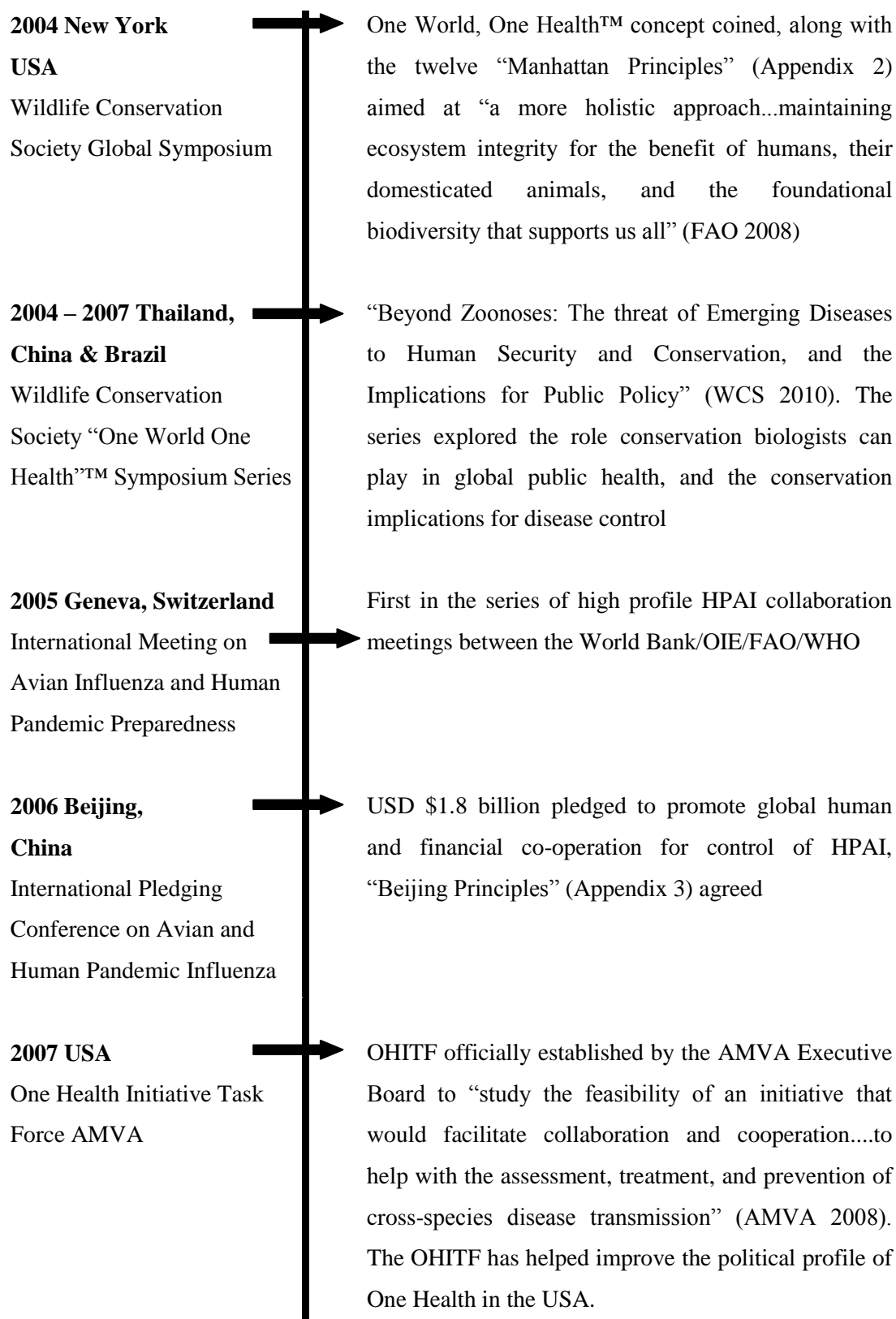
Young, J (2005) “Research, Policy And Practice: Why Developing Countries Are Different” *Journal of International Development*, Vol. 17, pp 727–734 DOI: 10.1002/jid.1235

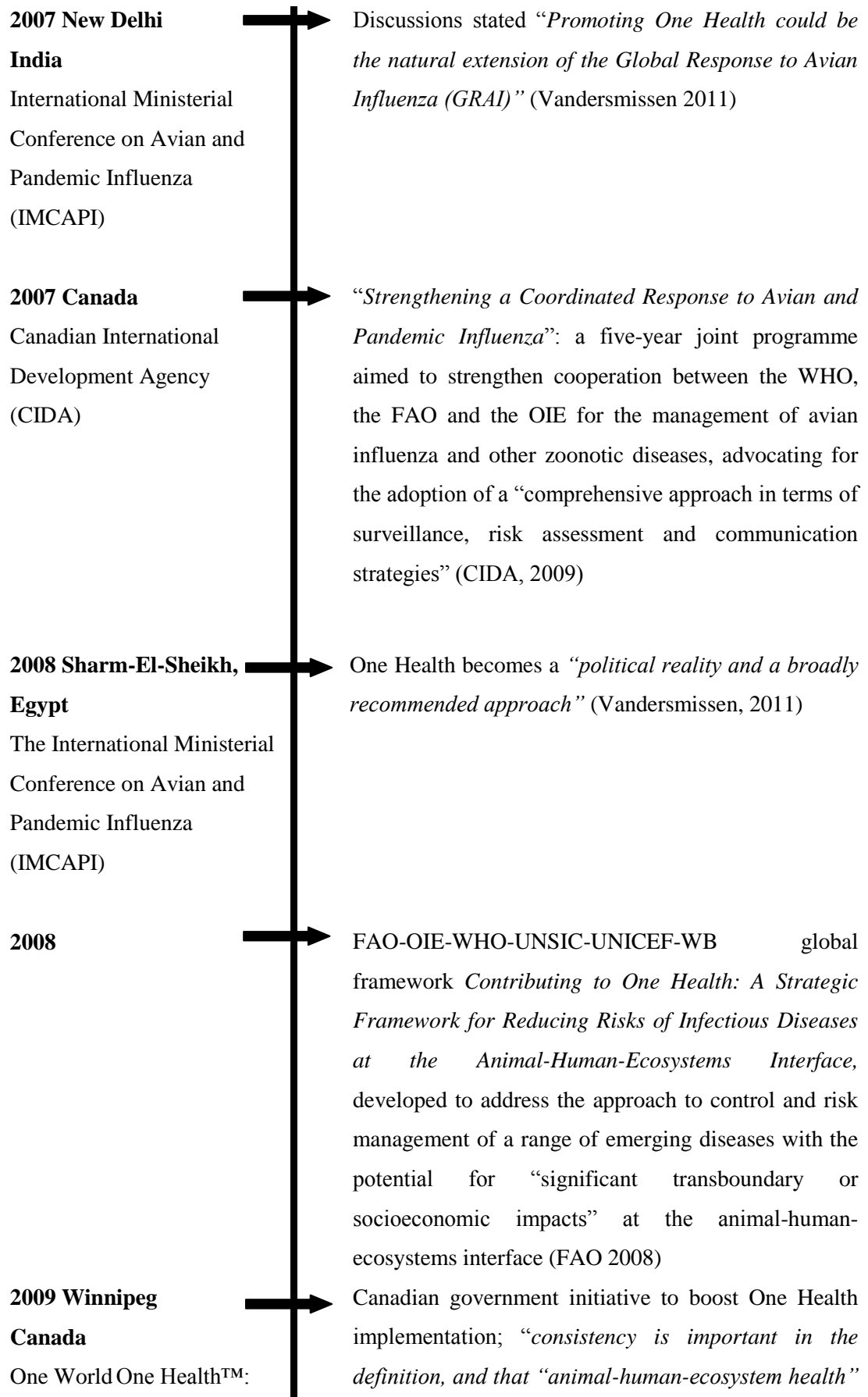
Zinsstag, J and Tanner, M (2008) “One health: The potential of closer cooperation between human and animal health in Africa”, *Ethiopian Journal of Health Development*, Vol.22 (special issue)

Zinsstag, J., Schelling, E., Wyss, K., Mahamat, M.B (2005) “Potential of cooperation between human and animal health to strengthen health systems” *The Lancet*, Vol 366, pp 2142-45

Zinsstag, J, Schelling, E, Bonfoh, B, Fooks, A *et al* (2009) “Towards a ‘One Health’ research and application toolbox”, *Veterinaria Italiana*, Vol. 45 Issue 1 pp 121-133

APPENDIX I: TIMELINE OF SIGNIFICANT ONE HEALTH EVENTS SINCE THE 1990'S





From Ideas to Action

should be hereafter used rather than simply “animal-human health” (Anon, 2009). Consensus was achieved on eight key recommendations largely centred around policy, advocacy and communication of One Health to various stakeholders

2009 CDC Atlanta USA

Creation of the National Centre for Zoonotic, Vector-Borne and Enteric Diseases (NCZVED)

Published 2009-2014 strategic framework entitled “*Confronting Infectious Diseases in an Interconnected World: People, Animals, and the Environment*”, emphasising the “strong commitment to the One Health approach to disease prevention and control” (CDC, 2009).

2010 Hanoi, Vietnam

International Ministerial Conference on Animal and Pandemic Influenza (IMCAPI)

Unanimous adoption of the *Hanoi Declaration* (Appendix 4), recommending a broad implementation of One Health as an approach to cross-sectoral collaboration worldwide

2010 Stone Mountain, USA
Stone Mountain Meeting

Operationalizing One Health: a Policy Perspective - taking stock and shaping an implementation roadmap

Establishment of six One Health working groups with three-year time-bound operational objectives

2010

Publications Office of the European Union: *Outcome and Impact Assessment of the Global Response to the Avian Influenza Crisis, 2005-2010 - “The European Union has already taken initiatives under the One Health umbrella and will continue to do so in the coming years”* (Vandersmissen, 2011)

2010

Fifth Global Progress Report: *Animal and Pandemic Influenza; A framework for Sustaining Momentum –*



APPENDIX II: MANHATTAN PRINCIPLES

We urge the world's leaders, civil society, the global health community and institutions of science to:

1. Recognize the essential link between human, domestic animal and wildlife health and the threat disease poses to people, their food supplies and economies, and the biodiversity essential to maintaining the healthy environments and functioning ecosystems we all require.
2. Recognize that decisions regarding land and water use have real implications for health. Alterations in the resilience of ecosystems and shifts in patterns of disease emergence and spread manifest themselves when we fail to recognize this relationship.
3. Include wildlife health science as an essential component of global disease prevention, surveillance, monitoring, control and mitigation.
4. Recognize that public health programs can greatly contribute to conservation efforts.
5. Devise adaptive, holistic and forward-looking approaches to the prevention, surveillance, monitoring, control and mitigation of emerging and resurging diseases that take the complex interconnections among species into full account.
6. Seek opportunities to fully integrate biodiversity conservation perspectives and human needs (including those related to domestic animal health) when developing solutions to infectious disease threats.
7. Reduce the demand for and better regulate the international live wildlife and bush meat trade not only to protect wildlife populations but also to lessen the risks of disease movement, cross-species transmission, and the development of novel

pathogen-host relationships. The costs of this worldwide trade in terms of impacts on public health, agriculture and conservation are enormous, and the global community must address this trade as the real threat it is to global socio-economic security.

8. Restrict the mass culling of free-ranging wildlife species for disease control to situations where there is a multidisciplinary, international scientific consensus that a wildlife population poses an urgent, significant threat to public health, food security, or wildlife health more broadly.

9. Increase investment in the global human and animal health infrastructure commensurate with the serious nature of emerging and resurging disease threats to people, domestic animals and wildlife. Enhanced capacity for global human and animal health surveillance and for clear, timely information-sharing (that takes language barriers into account) can only help improve coordination of responses among governmental and non-governmental agencies, public and animal health institutions, vaccine or pharmaceutical manufacturers, and other stakeholders.

10. Form collaborative relationships among governments, local people, and the private and public (i.e. non-profit) sectors to meet the challenges of global health and biodiversity conservation.

11. Provide adequate resources and support for global wildlife health surveillance networks that exchange disease information with the public health and agricultural animal health communities as part of early warning systems for the emergence and resurgence of disease threats.

12. Invest in educating and raising awareness among the world's people and in influencing the policy process to increase recognition that we must better understand the relationships between health and ecosystem integrity to succeed in improving prospects for a healthier planet.

APPENDIX III: BEIJING DECLARATION 18TH JANUARY 2006

WE, THE PARTICIPANTS IN THE CONFERENCE:

1. Commit ourselves to ensuring effective development and implementation of integrated national action plans within the framework of WHO/FAO/OIE global strategies guided by political leadership at the highest level, to mobilizing resources in our countries and to drawing upon government, civil society and the private sector to effect a coordinated response. In the context of our respective national plans, we agree to take vigorous prevention, mitigation, emergency preparedness, and rapid response measures in the short term together with actions over the longer term to prevent and control the spread of HPAI in the poultry and related industries and prevent human exposure to the infected birds.

2. Note with particular satisfaction the World Health Assembly's adoption of the International Health Regulations in May, 2005; emphasize that the implementation of the Regulations must reflect the real threats to international public health in the 21st century, including a possible influenza-related pandemic; and call for the earliest possible voluntary compliance with applicable articles in advance of the June 2007 entry into force of the new Regulations.

3. Subscribe to a long-term strategic partnership between the international community and the countries currently affected or at risk in which adequate and prompt financial and technical support is mobilized to complement the efforts by countries and regions, particularly developing countries. Areas of emphasis will include both immediate and longer-term measures. In the short term, priority will be given to helping countries contain, control and eliminate the virus in affected poultry and prepare for a possible pandemic. Priorities will be given to improving surveillance and detection capabilities, increasing public awareness and fostering community resilience, promoting vaccine research and development, developing stockpiles of human anti-viral, assisting with response and containment measures in the event of an outbreak and mitigating social, psychological and economic impacts

on the population. In the longer-term, priority will be given to developing capacity and infrastructure in animal and public health sectors, as well as undertaking complementary reforms in related sectors at all times that there is a need. The international community should conduct analysis and provide detailed guidance on a range of important issues – such as the appropriate structure for compensation systems, stockpile, monitoring and evaluation – that respond to individual country circumstances.

4. Commit to sharing information and relevant biological materials related to HPAI and other novel influenza strains in our countries in a rapid and timely fashion, and to ensure the development, dissemination and application of good practices of HPAI surveillance, control, and pandemic influenza preparedness in compliance with existing OIE standards on veterinary services and the newly adopted WHO International Health Regulations.

5. Commit to increasing cooperation on global research and development of safe and effective animal and human vaccines and antiviral medicines for humans, and to promoting affordable access for all who need them.

6. Commit to evaluating the results and the impact of our national pandemic influenza preparedness and action plans periodically, reviewing and updating them as necessary and updating the global HPAI control strategy and human pandemic preparedness plans by taking advantage of the expertise and the existing technical networks established by UN, WHO, FAO, OIE and other relevant organizations and groups.

Finally, we welcome the commitments made at the conference for the coordination with the participation of recipient countries of the financial contributions and pledges from international financial institutions and organizations, private foundations, development banks and donor countries. We see this as critical to facilitating the routing of pledged funds to priorities in integrated country action plans, as well as to regional and global actors that are leading the control and prevention efforts against

H5N1 and pandemic threat. We believe that these funds should be delivered and utilized on a prompt basis in accordance with the principles of aid effectiveness established in the Paris Declaration.

APPENDIX IV: HANOI DECLARATION APRIL 2010

WE, THE PARTICIPANTS IN THE CONFERENCE

1. Take note of the progress that has been achieved in global coordination and cooperation since the end of 2005 in the global response to highly pathogenic avian influenza (H5N1), and of the positive conclusions presented at this conference, and in independent evaluations of the overall H5N1 response.
2. Commend the ongoing consultations at all levels, as exemplified in particular by the technical meeting undertaken as part of this conference, to identify, inform, and promote efforts to improve global health.
3. Recognize the concerted efforts of the international community, including agencies of the United Nations system and other relevant international and regional organizations, countries, development and technical agencies, non-governmental organizations, foundations, communities, the private sector, and other partners to prepare for and respond to the threat of pandemic influenza; emphasize the need to continue to enhance coordination at the international level and encourage countries and international partners to further promote information exchange on experiences, policies, guidelines, clinical data, and other aspects bilaterally, regionally and globally.
4. Express satisfaction that commitments first made by participants at the January 2006 Beijing conference, and reaffirmed at subsequent conferences, have had significant results, including: the development and implementation of national integrated action plans within the strategic framework of the World Health Organization, the Food and Agricultural Organization, and the World Organization for Animal Health; and the establishment of strategic partnerships between the international community and the countries affected or at risk of HPAI H5N1.

5. Renew our commitment to continue and reinforce this long-term partnership, by working within the United Nations system and through global, regional, and inter-country networks to increase our capacity and cooperation on surveillance systems, epidemiological research, antiviral and vaccine research and development, health and veterinary systems strengthening, as well as safe and resilient systems for food production, and to evaluate periodically our preparedness and action plans for pandemics.
6. Recognize that despite substantial progress in controlling H5N1 HPAI globally, the virus continues to circulate in domestic poultry in a number of countries, and to result in human infections and deaths.
7. Encourage countries and international partners, including agencies of the United Nations system, to remain vigilant and continue to share information with respect to emerging threats such as H5N1 HPAI, pandemic (H1N1) 2009, and other influenza viruses and to continue their efforts towards the control and elimination of H5N1 HPAI, while working to strengthen jointly human and animal public health systems and to evaluate such efforts by effective metrics.
8. Recognize that global preparations for H5N1 HPAI influenza largely contributed to coordination of the response to pandemic (H1N1) 2009.
9. Recognize the critical importance of learning lessons from the responses to H5N1 HPAI and pandemic (H1N1) 2009, including lessons from important learning events hosted by a number of countries and institutions as well as reviews and assessments that were shared at the conference, appreciate the risks associated with these viruses, and commit ourselves to considering to take further actions to avert H5N1 HPAI and increasing efforts to review pandemic preparedness plans using, where relevant, guidance and tools provided by the international technical agencies and the multilateral

development banks; these country strategies should be aligned nationally and regionally to address the global “One Health” challenges.

10. Recognize that there is a need for the international community, led by the international technical agencies and development banks, to address the fundamental gaps in public health and animal health systems so as to reduce the impact of zoonoses, avert potential pandemics of animal origin, and mainstream investments and capacity in country health systems.
11. Call for increased efforts to strengthen early detection of, preparedness for, and rapid reporting of future events, by understanding the cross-sectoral nature of any threat, with particular focus on the health systems’ capacity for rapid inter-disciplinary action and coordination in line with the requirements outlined in IHR 2005 and the OIE standards on quality of Veterinary Services, with special attention devoted to develop and sustain such capacity in the least developed countries, to the needs of vulnerable groups, and to encourage the role of local communities as part of disease prevention and control programmes.
12. Call for the development of national strategies, plans, and interventions to stimulate whole-of-society, multi-sector, multi-disciplinary, and community-based actions when addressing disease threats that arise at the animal-human-environment interface, stress the importance of business continuity planning in critical sectors, encourage all stakeholders to strengthen institutional and practical mechanisms to support cooperation and collaboration, and work to improve risk communication at all levels, in particular at the community level.
13. Underline the importance of implementing science-based public health measures and food safety international standards to minimize the potential economic and trade implications, and encourage countries to rapidly report disease outbreaks.

14. Reaffirm the critical role of communication, while reviewing the challenges in communications on pandemic (H1N1) 2009; enhance the efforts to better communicate with our populations, including the media, health services, and specific communities, to promote understanding of the risk, policy direction and necessary prevention measures, and to promote behaviour change, where necessary, through effective communication.
15. Call for constructive cooperation between governments and the private sector, as well as academia, on innovations leading to improved surveillance, prevention, and treatment, including on diagnostic reagents, vaccines, and medicines, always working within the relevant policy frameworks established by competent national authorities and WHO and OIE.
16. Finally, call for concerted worldwide efforts by all countries and relevant agencies of the United Nations system, and other international and regional partners, to better understand the emergence of disease threats at the animal-human-environment interface through multi-sectoral actions, and to develop appropriate and sustainable means to reduce such threats.

**APPENDIX V: COMMUNIQUE NLDC MEETING, ABUJA, 17TH MARCH,
2011**

Preamble

The NLDC held its 41st meeting at Bolingo Hotel, FCT Abuja on the 17th of March, 2011.

The Honourable Minister, Federal Capital Territory, Senator Bala Mohammed was Special Guest of Honour and ably represented by Mallam Hamza Adamu Buwai, Secretary Agriculture and Rural Development, FCT. In declaring the meeting opened he highlighted the numerous achievements of the Ministry in the Livestock sub-sector such as Model Grazing Reserves development, Dairy Development, equipping of Veterinary Diagnostic Laboratories etc. He appreciated the support of the Federal Department of Livestock (FDL) of the Federal Ministry of Agriculture and Rural Development (FMOARD) in achieving this level of success.

OBSERVATIONS AND RECOMMENDATIONS:

1. Legislation on the Conservation of Donkeys:

The Committee noted the important roles of donkeys in the rural economy as beasts of burden and reiterated its earlier stand on the need to halt the continuous depletion of donkeys and other endangered animal species in the country through adequate legislation on consumption and trade. This Committee recommended the expansion of the sub-Committee on Legislation on Donkeys to include other relevant stakeholders so as to encourage its production and research in the country.

2. Enactment of Veterinary Council Act:

The Committee observed with dismay the continued delay in the passing of the Act by the National Assembly. The Committee therefore pleads with the National Assembly to speed up the enactment of this Act for National Interest.

3. Resuscitation of the National Zoonosis Centre:

Report on resuscitation of the National Zoonosis Centre was presented and discussed. The NLDC approved the recommendations on National Zoonosis Centre and its location at the University of Ibadan. The Committee urged Ministry to actively collaborate with the relevant stakeholders to ensure the effective take off of the Centre.

4. Legislation on Feed Quality Standards

The Committee urged the Federal Government to accelerate the process of developing a legislation to regulate feed quality standards and charged the Nigerian Institute of Animal Science and other relevant stakeholders in the Sector to spearhead this initiative.

5. Model Grazing Reserve and Stock Routes Development:

The Committee commends the Federal, States and the NLDP for the achievements so far recorded in Grazing Reserve and Stock Routes development nationwide. The Committee however noted that the three tiers of Government should honour the sharing formula of 50 : 30 : 20 to ensure accelerated development of the remaining infrastructural provisions in Grazing Reserve and along resting points on grazing corridors nationwide. The Committee also urged the National Assembly to accelerate the process of passing the bill on the National Grazing Reserve Commission which will go a long way in addressing the issue of Pastoralists – Farmers conflicts.

6. Progress Report on Avian Influenza Control Project (AICP)

The Committee commended the efforts of the Federal Department of Livestock (FDL), the State Governments and other collaborating Agencies in stamping out this dreaded disease in Nigeria.

To sustain this achievement, the Committee recommended that the Federal and State Governments should provide adequate funds in their budget to ensure the continued implementation of the project. The Committee also directed the National Coordinator to produce a comprehensive sustainability plan for the project.

7. Status of Disease Reporting in Nigeria:

The Committee expressed great concern over the poor performance of the State veterinary services and other relevant stakeholders with respect to disease reporting in the country. The Committee urged the State Veterinary Services, VTHs and all other stakeholders to discharge their responsibility in disease reporting as a matter of obligation. The committee also recommended improvement of funding for disease reporting by all tiers of government in the country and greater collaboration between the Epidemiology Units of the Federal Department of Livestock (FDL) and Federal Ministry of Health (FMoH) for the purpose of exchange of information and control of zoonotic diseases in the light of One World one Health initiative.

8. National Programme for the Control of Newcastle Disease (NCD):

The Committee observed that combating the scourge of NCD in both commercial and rural free range poultry is still a national challenge. The Committee therefore recommended the strategic control of Newcastle disease through the use of biosecurity measures complemented by mass vaccination of rural poultry nationwide using vaccination using NDV I₂.

9. National Programme for the Control of African Swine Fever (ASF):

The Committee approved the implementation of the contingency plan for the control of ASF bearing in mind that many rural households' livelihood depend on pig production. The Committee also recommended a baseline survey, biosecurity enforcement in the control of ASF and the involvement of the Universities and Research Institutes in the control programme. Committee also recommended that compensation of affected pig farmers should be integrated in the control programme and urged the Federal and State Governments to make adequate provision for the Project.

10. Abattoir Development and Meat Inspection Act:

The Committee appreciates the efforts of the Federal Government in renovating some Abattoirs across the country. The Committee also noted the positive innovations in Abattoir development and Management in some States and

recommended the promotion of Public Private Partnership (PPP) initiative to further support the development of standard Abattoir/slaughter slabs nationwide.

The Committee also urged the application of global best practices in Meat Inspection and the acceleration of the process of enacting the Meat Inspection and Hygiene legislation by relevant stakeholders authorities. Each LGA should have at least, one Veterinary Meat Inspector in its employment for effective and efficient provision of safe and wholesome meat and meat produce for the populace.

11. Need for a Rabies Surveillance Programme in Nigeria:

The Committee noted the increasing human casualties due to Rabies and urge for the conduct of a National Rabies Surveillance program to determine the actual status of Rabies in the country. The Committee recommended the control of Rabies in animals through mass vaccination of dogs and cats and noted that a multisectoral and multidisciplinary approach is necessary to ensure all stakeholders are involved in the control.

12. Establishment of Federal Veterinary Medical and Primary Veterinary Health Care Centres in Nigeria

The Committee noted the existing poor veterinary facilities at Federal, State and local government level for the provision of veterinary care to animals. The Committee therefore urges Federal Government to establish Veterinary Medical Centres in the six geo-political zones and primary veterinary care centres in each local Government to handle major transboundary animal diseases and support the States and Local Governments in the implementation of primary veterinary health care services..

13. Tsetse Fly and Trypanosomosis Control in Nigeria:

The menace of tsetse fly and trypanosomosis is increasing nationwide. This limits livestock development and production as well as endangering humans through the transmission of sleeping sickness.

While appreciating Government initiatives in this programme, the committee recommended that the three tiers of government should provide adequate funding to support the Pan African Tsetse and Trypanosomosis Eradication Campaign (PATTEC) in Nigeria.

14. Establishment of National Livestock Resources Centre

The Committee noted the absence of accurate and reliable livestock statistics essential for effective planning and policy development and also that the last livestock resource inventory was undertaken in 1992. The Council therefore urge the Federal Government to undertake a national livestock census and establish a national livestock resource Centre as a repository of all information and statistics relating to the livestock sub-sector.

15. Importation of Grand Parent Stock and Parent Stock for Poultry:

The Committee observed the fall in the quality and scarcity of day old Chicks in Nigeria. In order to meet the growing demand of poultry farmers, the Committee recommended that

- (i) government should approve limited importation of pureline grandparent and parent stocks of poultry through certified firms who possess the competence and infrastructure/facilities to bring them into the country to stem the collapse of the poultry industry in Nigeria
- (ii) that both these firms and the producers of day old chicks should be regulated
- (iii) imports are to be sourced from countries that are free of H5N1 before order is made and up to point of delivery.

APPRECIATION:

The Chairman and members of the National Livestock Development Committee appreciate the fruitful contributions of Honourable Minister, FCT, Abuja, Deans and Directors of VTHs of Universities, Research Institutes, State Directors of Veterinary/Livestock Services, Professional Livestock Associations, the Secretariat, the Press and all the good people of the Federal Capital Territory, Abuja.

Your hospitality and open door policy made our stay enjoyable and very memorable.
Thank you.

Dr. Joseph Nyager
Chairman NLDC 2011