

**CROSS-SECTORAL COLLABORATION FACTORS AND IMPLEMENTATION OF
THE ONE HEALTH APPROACH IN KENYA: A CASE OF
THE ZOOBOTIC DISEASE UNIT (ZDU) AND CORE ONE HEALTH
IMPLEMENTERS**

BY

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**A Research Project Report Submitted in Partial Fulfilment of the Requirements for the
Award of the Degree of Master of Arts in Project Management of the University of Nairobi**

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DECLARATION

This research project report is my original work and has never been presented for a degree or any other award in any other institution of higher learning

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DEDICATION

In memory of my late mother Janes Nyanduko who worked hard for my education and to my wife Jane and daughter Irene, for their support.

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ABBREVIATIONS AND ACRONYMS

| | |
|-----------------|---|
| AU-IBAR | African Union Inter African Bureau for Animal Resources |
| AVMA | American Veterinary Association |
| DVS | Directorate of Veterinary Services |
| DMS | Directorate of Medical Services |
| EIDS | Emerging Infectious Diseases |
| FAO | Food and Agriculture Organization of the United Nations |
| FELTP | Field Epidemiology and Laboratory Training |
| HIV/AIDS | Human Immunodeficiency virus/Acquired immunodeficiency syndrome |
| IRCM | Integrated Regional Coordination Mechanism |
| KWS | Kenya Wildlife Service |
| MALF | Ministry of Agriculture Livestock and Fisheries |
| MENR | Ministry of Environment and Natural Resources |
| MOH | Ministry of Health |
| DSER | Division of Disease Surveillance and Epidemic Response |
| DPPS | Department of Promotive and Preventive Services |
| OHASA | One Health Alliance of South Asia |
| OHCEA | One Health East and Central Africa |
| OHC | One Health Commission |
| OHITF | One Health Initiative Task Force |
| OH | One Health |
| OIE | World Animal Health Organization |
| OWOH | One World One Health |
| SPSS | Statistical Package of Social Science |
| VCD | Veterinary and Capture Department |
| VPH | Veterinary Public Health |
| WCS | Wildlife Conservation Society |
| WHO | World Health Organization of the United Nations |
| ZDTWG | Zoonotic Diseases Technical Working Group |
| ZDU | zoonotic disease unit |

ABSTRACT

The One Health (OH) approach refers to collaboration across human health, animal health and environment sectors in order to attain optimal health for all domains. Few studies have examined how factors such as awareness, leadership, technical capacities and policies affect implementation of the OH approach. The purpose of this study was to examine these factors in the context of the Zoonotic Disease Unit (ZDU), the Ministry of Health (MOH), the Directorate of Veterinary Services (DVS) and the Kenya Wildlife Service (KWS). The study used a mixed methods research design. A semi-structured questionnaire was administered to 71 respondents and 7 key informants were targeted for interview. All 7 key informants and 53/71 (74%) of the respondents participated in the study. Data was checked for consistency, coded, entered into the Statistical Package for Social Science (SPSS) and analysed using descriptive and correlational statistics. Interview data was transcribed and analysed thematically. From the analysis, 41/53 (77.2%) of the respondents were senior personnel, 51/53 (85%) of them had worked for five years and above in their organizations and 38/53 (71.7%) had at least a Master's degree. The study established that the level of awareness about the OH approach was high within specific departments but average or low organization-wide. The Spearman's Rank Order correlation revealed a moderate and statistically significant positive correlation between respondents' levels of awareness and their sensitization on the OH approach ($R_s(51) = 0.55, p < 0.001$). Further, there was a weak but statistically significant positive correlation between level of awareness and academic qualifications ($R_s(51) = 0.37, p = 0.007$). The study found that though most senior personnel had embraced the OH approach, they participated less in its implementation due to constraints such as inadequate funding and weak capacities. There were moderate and statistically significant positive correlations between participation in leadership roles in the OH approach and the level of awareness ($R_s(51) = 0.54, p < 0.001$) and level sensitization ($R_s(51) = 0.52, p < 0.001$). Knowledge was the most widely acknowledged shared technical resource in the OH approach others being laboratories, research platforms, skilled human resources and logistics. Insufficient collaboration and coordination was found to be the main limiting factor to sharing of technical resources. The study further found that organizational policies, except the new veterinary policy, did not sufficiently provide for the OH approach and review was necessary according to 51/53 (98%) of the respondents. The study found that although the OH approach was being implemented well in Kenya, constraints such as inadequate funding, narrow stakeholder involvement and weak policy were felt. The study recommends scaling up sensitization about OH approach, training personnel on the OH approach, developing frameworks for sharing technical resources and reviewing policies to incorporate the OH approach.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

In recent years, emerging diseases with serious socio-economic consequences have re-awakened the global community to the need for cross-sectoral collaboration in addressing health matters (World Bank, 2010; Rabinowitz *et al*, 2013; Bidaisee. and Macpherson, 2014). The Ebola outbreak in western Africa, for instance, cost over USD 6 billion in direct expenses and at least USD 15 billion in indirect economic losses by March 2015 (Gostin and Friedman, 2015). The World Bank (2012) estimates the potential economic impacts for an influenza pandemic involving 71 million human fatalities or 1 % of the global population at USD 3 trillion (World Bank, 2012). These examples underscore the need for effective strategies to address such diseases.

About 75% of emerging diseases are zoonotic, meaning that they may be naturally transmitted from vertebrate animals to humans and vice versa (Graham *et al.*, 2008).The emergence of these diseases is driven by factors such as ecosystem change, industrial development, social inequalities and climate change that are linked to human population growth (Jones *et al.*, 2008; Cascio, Bosilkovski, Rodriguez and Pappas, 2010; Olson *et. al.*, 2015). Several sectors, ministries and disciplines must therefore collaborate in order prevent and control these diseases and to achieve optimal health for people, animals and the ecosystem (Parkes *et al.*, 2005; Zinsstag, Schelling, Walter and Tanner, 2010; Wilkinson *et al*, 2011).

Weak collaboration across sectors in addressing health matters has been recognized as a global issue (World Bank, 2010; FAO, OIE and WHO, 2010). This weakness is based on entrenched organizational cultures as described by Degeling *et al.*, 2015:

“Established ‘sectors’ – whether orientated towards human or animal health, agriculture or the environment – have genealogies, traditions and rationalities of “what we are here for” that have been shaped by social, political and administrative processes. ... As a consequence, establishment and implementation of mechanisms that enhances information-sharing, collaboration and intersectoral co-operation, such as working groups and interdepartmental committees, have rarely delivered the outcomes promised in the past”(Degeling *et al.*, 2015 p8).

The gaps and inefficiencies in the health sectors due to weak collaboration became evident during the fight against the avian influenza pandemic threat that started from southeastern Asia in 2003 and spread rapidly across the world (World Bank, 2010, 2012; Coker *et al.*, 2011). The threat prompted international organizations (FAO, OIE and WHO) to advocate for the formation of multi-sectoral national avian influenza taskforces which proved effective in addressing the pandemic threat (FAO *et al.*, 2008; Aman, Allison and Razaq, 2013). The lessons learnt led to increasing global advocacy for the use of collaborative approaches in addressing health issues in what is currently the One Health (OH) approach (Parkes *et al.*, 2005; Zinsstag *et al.*, 2010; Wilkinson *et al.*, 2011; World Bank, 2010, 2012).

The American Veterinary Association (AVMA) (2008) defines OH as: “the collaborative effort among multiple disciplines working at local, regional and global levels to attain optimal health for humans, animals and the ecosystem”. Various authors have described OH as an umbrella concept that encompasses different but complementary ideas such as one medicine, One-World-One-Health, ecosystem health, conservation medicine, comparative medicine among others (Leboeuf, 2011; Lerner and Berg, 2015).

Globally, the OH approach has received popularity through an unprecedented number of international meetings, inter-ministerial conferences and networks (World Bank 2010; Leboeuf, 2011; Rabinowitz *et al.*, 2013; Mekaru and Brownstein, 2014). In the last decade, there has been unparalleled growth in scholarly work on the subject (Bidaisee and Macpherson, 2014). Political leaders of countries worldwide have been sensitized to the OH approach through global inter-ministerial conferences (FAO *et al.*, 2008). Numerous international associations have emerged under the umbrella of OH: (Lee and Brumme, 2013) and the concept has been adopted in the global sustainable development and health security agendas (Gostin and Friedman, 2015; Gronvall, Boddie and Colby, 2014).

In Africa, various regional programs have been implemented under the umbrella of OH such as Afrique One, Southern African Centre for Infectious Diseases (SACCIDS) and One Health Central and Southern Africa (OHCEA) (Rwego *et al.*, 2016). Case studies demonstrating success of collaborative projects involving livestock and human health in the spirit of OH have been documents from Chad, Ethiopia, Mali, Uganda, Nigeria and

Tanzania among other countries (Bechir *et al.*, 2004 cited in Kamani *et al.*, 2015; Okello, Bardosh, Smith and Welburn, 2014; Kamani *et al.*, 2015).

Kenya is among progressive countries in the African continent in the implementation of the OH approach. Kenya's OH office, known as the Zoonotic Disease Unit was established in 2011. The office operates under the oversight of the Zoonotic Technical Working Group (ZTWG) and integrates human, animal and environmental approaches to management of zoonotic diseases (Mbabu *et al.*, 2014; Kamani *et al.*, 2015). The ZDU developed Kenya's One Health strategic plan running from 2012 to 2017. The vision of the plan is to reduce the burden of zoonotic diseases and be better able to respond to epidemics of emerging and re-emerging infectious diseases.

1.2 Statement of the Problem

Despite increasing global momentum of the OH approach, there are relatively few practical examples of long-term commitment to and progress in its implementation at national and grass-root levels (Little, 2012; Rabinowitz *et al.*, 2013). Various authors have stated the need to generate more evidence to inform concrete policy shifts towards adoption of OH approach at these levels (Okello *et al.*, 2014; Robinowitz *et al.*, 2013).

Diverse factors spanning individual, organizational and systemic levels influence inter-sectoral collaboration (Thellufsen, 2008). They include awareness, leadership, technical capacities and policies among others (Van Gorder, 2015; Henry, 2015; Owusu, Baffour-Awuah, Johnson, Mohan and Madise, 2013).

The ZDU in Kenya has been reported as a successful model in implementing the OH approach at national level with a number of countries expressing interest to adopt a similar model (Mbabu *et al.*, 2014). The ZDU is therefore a good case to study cross-sectoral collaboration factors and implementation of the OH approach.

1.3 Purpose of the Study

The purpose of the study was to investigate the influence of cross-sectoral collaboration factors on implementation of the OH approach in Kenya.

1.4 Objectives of the Study

1. To examine the influence of awareness on implementation of OH approach in Kenya.
2. To establish the influence of organizational leadership on implementation of OH approach in Kenya.
3. To determine the influence of technical capacities on implementation of OH approach in Kenya.
4. To examine the influence of organizational policies on implementation of OH approach in Kenya.

1.5 Research Questions

1. How does awareness influence implementation of OH approach in Kenya?
2. How does organizational leadership influence implementation of OH approach in Kenya?

3. In what ways do technical capacities influence implementation of OH approach in Kenya?
4. How do organizational policies influence implementation of OH approach in Kenya?

1.6 Significance of the Study

This study may contribute to evidence that is needed to inform policy shifts towards stronger cross-sectoral collaboration in OH approach. The data from the study could provide ZDU with evidence on issues that need to be addressed to improve implementation of the OH strategy in Kenya. The data might also be useful for policy makers from other countries wishing to develop similar OH mechanisms like ZDU. The study could also provide useful information to researchers and academicians undertaking studies on cross-sectoral collaboration and the OH approach.

1.7 Context of the Study

The ZDU was established through a memorandum of understanding between the Ministry of Health (MOH) and Ministry of Agriculture Livestock and Fisheries (MALF) in 2011. It currently has a permanent staff of two personnel comprised of one medic and one vet from the respective ministries. The unit functions as a coordinating body for OH approach and is the secretariat for the Zoonotic Diseases Technical Working Group (ZDTWG) which is the oversight committee for the OH approach. The core implementing arms of ZDU are departments or divisions in the MOH and MALF and the Veterinary and Capture Department (KWS/VCD) of Kenya Wildlife Service in the

Ministry of Environment and Natural Resources (MENR). Other institutions are also engaged with ZDU from time to time through the ZDTWG. Due to devolution of ministry functions to county level, national level departments have a lean staff as they focus largely on capacity building, policy, oversight, coordination and related functions as defined by the constitution. Personnel at this level are knowledgeable about implementation of the OH approach and could be relied upon to provide the necessary data. However, actual implementation of OH approach takes place in the counties.

1.8 Delimitation of the Study

The study limited itself to national level professional and technical personnel from the ZDU, the Division of Disease Surveillance and Epidemic Response in the Directorate of Medical Services, the Directorate of Veterinary Services and the KWS/VCD. Complementary information was obtained from selected experts from the University of Nairobi's Faculty of Veterinary Medicine and School of Public Health and from the Directorate of Wildlife Conservation in MENR.

1.9 Limitations of the Study

Key informants in the study were senior officials in their respective organizations with busy administrative and travel schedules. Their availability was therefore limited and there were frequent changes in scheduled appointments. Appointments were therefore secured ahead of time, sometimes up to two months earlier, and followed through persistently.

Some of the study organizations required lengthy institutional procedures to authorize the study. Some of the respondents were less confident and willing to respond to the study questionnaire. To address this limitation, the researcher used the snowballing approach whereby respondents were accessed through their close counterparts.

The OH approach being a new and technical concept, the study relied on expert knowledge from ZDU and the researcher's own experience to identify key divisions/departments that were most involved in implementing the approach. This might have introduced a degree of bias in the sampling.

Since implementation of the OH approach takes place at the county level, it was not assessed directly in the current study. This made it difficult to make some statistical inferences. However, the study made a qualitative assessment of the state of implementation using document review and data from key informants.

1.10 Basic Assumptions of the Study

The basic assumptions of the study were that:

1. The organizations targeted by the study were actively involved in implementing OH approach
2. Key informants were available during the study and respondents would provide truthful and honest responses.
3. Institutional authority from the Ministry of Health, Ministry of Livestock and Kenya Wildlife Service to conduct the study would be granted

1.11 Definitions of Significant Terms Used in the Study

Awareness- In the current study, awareness means the degree to which one is informed about the OH approach.

Collaboration-The term collaboration in the current context means working with another person or group of people, with whom one would normally not be bound to work with by organizational or professional mandates, to jointly create greater value.

Cross-sectoral collaboration-Cross-sectoral collaboration or intersectoral collaboration in this study means working with more than one sector of society to take action on an area of shared interest to achieve better results than those obtained working in isolation.

Cross-sectoral collaboration factors-In this study cross-sectoral collaboration factors are those factors that can positively or negatively affect collaborative programs or activities that span different sectors of society in any field.

Emerging Infectious Diseases (EIDs)-In this study the meaning of EIDs will be customized from the OIE definition to mean new infections resulting from: the evolution or change of an existing pathogen or parasite resulting in a change of host range, vector, pathogenicity or strain; or the occurrence of a previously unrecognized infection or disease.

Leadership-In this study leadership refers to those qualities in an individual that enable one to positively influence group behavior towards achievement of tasks in the context of cross-sectoral collaboration.

One Health Approach-For the purpose of this study the One Health Approach means a way of thinking and working that recognizes the importance of collaboration among

different disciplines and sectors in achieving optimal health for humans, animals and the ecosystem.

Technical capacities-In this study technical capacities mean specialized human skills and experience coupled with the material and financial means needed to carry out the functions of animal and human health organizations.

Policies- Policies in the current study mean basic principles and associated guidelines, formulated and enforced to direct and limit actions of organizations in pursuit of long-term goals.

Zoonotic diseases- The definition of zoonotic diseases in this study is customized from WHO definition to mean those diseases that can be transmitted from vertebrate hosts to humans and vice versa.

1.12 Organization of the Study

The study is organized into five chapters. Chapter one is introduction comprising of the background to the study, statement of the problem, purpose of the study, objectives of the study, research questions, significance of the study, delimitation of the study, limitations of the study, basic assumptions of the study, definitions of significant terms used in the study and organization of the study. Chapter two comprises review of literature covering: theoretical and empirical review on the influence of awareness on implementation of OH, influence of leadership on implementation of OH, influence of technical capacities on implementation of OH, and influence of organizational policies on implementation of OH; these are followed by theoretical framework, conceptual framework and summary of the literature. Chapter three presents research methodology covering research design,

target population, sampling procedure, study sample size, methods of data collection, validity and reliability of instruments, operational definition of variables, data collection procedures, methods of data analysis and ethical considerations. Chapter four is data analysis, presentation and interpretation. Chapter five provides summary of the findings, discussion, conclusions and recommendations. Suggestions for further study are also presented.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter covers: a general review of literature on cross-sectoral collaboration and implementation of OH; theoretical and empirical review of literature on awareness, leadership, technical and operational capacities, and policies as cross-sectoral collaboration factors that influence implementation of OH; description of the theoretical and conceptual frameworks underpinning the study and finally a summary of the literature review.

2.2 Cross-Sector Collaboration and Implementation of the OH approach

In recent years, the OH approach has gained increasing global popularity as an approach for prevention and control of emerging infectious diseases and promoting sustainable ecosystems (Gebreyes *et al.*, 2014; Rabinowitz *et al.*, 2013; World Bank, 2010; World Bank, 2011). Few studies, however, have focused on the factors influencing its practical implementation (Little, 2012; Okello *et al.*, 2014; Rabinowitz *et al.*, 2013). Although the approach has emerged as a somewhat new idea, its roots are not new and its principles are essentially those of cross-sectoral collaboration (Rabinowitz *et al.*, 2013; World Bank, 2010; American Veterinary Medical Association, 2008).

Collaboration is conceptualized at different levels: interpersonal collaboration occurs between individuals (Smith *et al.*, 2009); inter-professional collaboration occurs between different kinds of expertise such as general practitioners, nurses, pharmacists, social workers and other specialists in the same organization (Wingo, Havyer, Comfere, Nelson

and Reed, 2015; Irajpour and Alavi, 2015);inter-organizational collaboration involves two or more organizations (Ada, 2013; Paananen, 2015; Henry, 2015); and finally, cross-sectoral collaboration is the most complex form of collaboration, since it involves the other three levels as well as different sectors of the society (Axelsson and Bihari, 2006).

Inter-organizational collaboration is viewed by Wood and Gray (1991) as both a process and an institutional arrangement: as a process, it enables parties who see different aspects of the problem to constructively explore their differences and find new possibilities; as an institution, it provides concrete arrangements that enable the creation of shared norms, rules and standards of action between the organizations working together. Ada (2015) on the other hand views interorganizational collaboration as a relationship that lies mid-way in a continuum of how organizations deal with one another ranging from mere exchange of information at one end and total integration of services at the other extreme. He asserts that collaboration is a distinctive positive relationship characterized by sharing of resources and mutual obligations and creation of opportunity for joint value creation though it may take different approaches. Himmelman (2002) and Liimatainen (2015) also agree that collaboration is inherently more time-and resource-consuming than non-collaborative activities.

Cross-sectoral collaboration shares the same conceptualizations in literature with interorganizational collaboration. Bryson, Crosby and Stone (2006) use the same continuum of relationships interorganizational collaboration to conceptualize cross-sector collaboration. Similarly, they define cross-sector collaboration as “the linking or sharing

of information, resources, activities, and capabilities by organizations in two or more sectors to achieve jointly an outcome that could not be achieved by organizations in one sector separately.”

The factors that influence collaboration performance are conceived in different ways. Harman (2008), for instance, distinguishes three sets of factors, namely: antecedent factors that exist before the collaboration; social and political factors that operate in the external environment; and process factors that deal with how the collaboration process is managed. Paananen (2015) conceptualizes the factors at three levels, namely: macro-, meso- and micro levels. The author defines macro level factors as those that entail policy and policy instruments; meso level factors as those that have to do with the network of organizations; and micro level as those that pertain to management (by individuals) of everyday activities of inter-organizational consortia. Mattessich et al. (cited in Clark, 2008) on the other hand groups the factors into six categories, namely: environment, membership characteristics, process and structure, communication, purpose and resources. The three categorizations cover the same factors.

Among antecedent factors that influence collaboration, Harman (2008) enumerates: availability of necessary resources to devote to the collaborative initiative; skillful leadership to guide the collaborative group; compatibility of the organizations in terms of common mission and belief that they will benefit; and flexibility in their dealings with each other. Among the social and political factors, he asserts that successful collaboration typically require support from political leaders, opinion-makers and others who control

valuable resources and thus give legitimacy to the collaborative process. Among process factors he argues that for successful collaboration members must: develop clear roles and policy guidelines that provide a structure for the collaborative process; share ownership of the process; ensure an appropriate pace of development; ensure that within each participating organization there are multiple layers of participation in the collaboration; have open communication between partners; and share power equally.

Cross-sector collaboration has a wide range of benefits including: building financial sustainability; increasing innovation; reduced costs and risks of innovation; sharing resources; accessing multiple technological competencies; acquiring more flexibility in operations; speeding up the innovation process; leveraging resources and perspectives of different sectors; and creating a more just and equitable society (Panaanen, 2015; Henry, 2015; Harman, 2008).

Different scholars acknowledge that cross-sector collaboration is often faced with various challenges such as: disparate and competing interests of stakeholders; tensions and contradictions among dissimilar partners regarding process, structure and goals; differences in decision making styles, organizational language, identities and expectations; challenges related to resource flows, information flows, and mutual expectations; differing thought worlds and mental models making it cognitively difficult for members to align the problems and solutions the group faces; problematic communication stemming from differences in professional languages; and conflict among team members with different norms (Panaanen 2015; Henry 2015; Harman 2008).

2.3 Awareness and Implementation of the OH Approach.

Awareness is critical in overcoming barriers to cross-sectoral collaboration (Bech, 2008; Alter and Hage, 1993). Alter and Hage (1993) affirm that awareness promotes willingness to collaborate, trust, and a perception of interdependence-all of which are vital in promoting collaboration. According to Bech's (2008) model of awareness, the nature and role of awareness evolves through five phases of interorganizational collaboration, namely: problem-setting phase, direction-setting phase, structuring phase, problem solving phase, and relation maintaining phase. Awareness evolves through these phases from the awareness of existence of other stakeholders through awareness of shared problems and possibilities to awareness of successes and need for further common projects.

There is little empirical literature on the role of awareness in the implementation of OH. Gebreyes *et al.* (2014) argue that on-time and real-time communication and awareness creation to reach target audiences at the grassroots level and upward activities play crucial roles in operationalizing One Health in low-resource settings. Okello *et al.* (2013) attribute the weak participation of the human health sector in OH implementation in Nigeria to inadequate awareness. Bidaisee and Macpherson (2013) in their literature review on zoonoses and OH observe that the implementation of OH approaches by developed nations has created awareness of OH for countries in low resource settings. On the other hand, Okello, Gibbs, Vandersmissen and Welburn (2011) report that, in a collaborative study on zoonotic diseases in the Niger, there was little support from

politicians attributed to low level of awareness among them of the benefits of OH. On the same issue, Halliday, Allan, Ekwem, Cleaveland, Kazwala and Crump (2015) cite low level of awareness among clinicians of presence and burden of zoonotic pathogens as a hindrance to collaborating in addressing these issues.

2.4 Organizational Leadership and Implementation of the OH Approach

Leadership is crucial in creating a strategic climate for implementation and sustainment of evidence-based practices (Aarons, Ehrhart, Farahnak and Sklar, 2014). According to these authors, when such climate is high personnel clearly understand that their leaders support and endorse implementation of the practices. Aarons, Ehrhart, Farahnak and Hurlburt (2015), using a randomized mixed case study, demonstrated the impact of leadership and organizational development intervention to implementation of evidence-based practices in mental health hospitals in California, U.S.A. The authors affirmed the feasibility, acceptability and utility of leadership training in improving implementation of such practices.

Deluca and Soucat (2013) illustrate the role that has been played by USAID-funded leadership development interventions in improving performance of health workforces in African countries. These authors discuss three case studies, namely Kenya, Tanzania and Ghana where the leadership development programs were shown to have led to significant improvement of service delivery outcomes. The Kenyan case study used a quasi-experimental design that compared indicators addressed by health teams receiving leadership training with those of teams not receiving the intervention. Based on similar

case studies, Seims *et al.* (2012) also affirm that strengthening of leadership and management skills of health personnel plays an important role in improving service delivery outcomes.

Most extant literature, however, typically examines leadership within organizations and less attention has been given to practices associated with effective leadership across organizations (Henry 2015). In a multiple case study of non-profit and health care organizations, Wooten *et al.* (2006) examined the role played by leaders as change agents in cross-organizational partnerships aimed at addressing health disparities in the USA. These authors affirmed that such leaders facilitate diffusion of knowledge across organizational boundaries, enable capacity building, secure and manage resources, and empower stakeholders among other roles. To achieve these, the leaders must have the skill sets needed to understand and maneuver social, political and economic institutions through decision making and implementation of policies (Wooten *et al.*, 2006).

Several other scholars acknowledge the need for skilled and more collaborative forms of leadership in complex multi-organizational collaborations (Henry, 2015; Waddock 2014; Crosby and Byson, 2010; Clark, 2008; Harman, 2008; Gray and Sites, 2013; Clark, 2008; Aarons, Farahnak, Ehrhart, and Sklar, 2009). Such type of leadership is able to manage tensions caused by apparent contradictions arising from differences in mandates, visions and goals, between organizations (Paananen, 2015). Henry (2015) argues that cross-boundary leadership is also able to align objectives of collaborating parties, manage

interactions across organizational boundaries, establish a collaborative structure and maintain a neutral stance, which builds trust.

Few studies have treated the subject of leadership in relation to the implementation of OH although the importance of leadership is often implied (Kayunze *et al.* 2014; Wurapa *et al.*, 2011; Karimuribo *et al.*, 2012; Mbabu *et al.*, 2014). Kayunze *et al.* (2014), in their study of enablers and barriers to OH health, found that factors such as advocacy for control of zoonoses, sharing of transport facilities and joint training programs were rated highly as enablers of inter-sectoral collaboration. These factors imply existence of supportive leadership functions. Wurapa *et al.* (2014) in their study of the contribution of the Field Epidemiology and Laboratory Training (FELTP) in Ghana using the OH concept observes that graduates from the FELTP training have taken up leadership positions at District and other levels implying that there is a link between leadership and OH implementation. The establishment and operationalization of the ZDU in Kenya (Mbaabu *et al.*, 2014) also implies effective leadership functions.

2.5 Technical Capacities and Implementation of the OH Approach

Although there is much literature in the development field that discusses capacity needs for the implementation of OH, few empirical studies have been conducted in this field. Most extant literature is in the form of conference proceedings, commissioned reports and workshop reports, among others. The global strategic framework by OIE *et al.* (2008) for reducing risks of infectious diseases at the animal-human-ecosystem interface identifies five key areas of technical and operational capacity building that would

contribute to OH implementation at national and regional levels. These are: capacity in disease surveillance, making use of international standards, tools and monitoring processes; capacity in communication strategies for prevention, detection and response to diseases outbreaks; capacity in emergency response capacities; capacity in cross-sectoral collaboration; capacity in strategic research; capacity for control of existing and potentially re-emerging infectious diseases.

Seimenis (2010) discussing capacity building needs for cross-sectoral collaboration in the control of zoonoses and food-borne diseases in the Mediterranean and Middle East region argues that effective implementation of OH requires robust public health and animal health systems that are compliant to WHO and OIE international standards. Gebreyes *et al.* (2014) identified four capacity building needs for the implementation of OH in low resource settings, namely: (1) development of adequate science-based risk management policies, (2) skilled-personnel capacity building, (3) accredited veterinary and public health diagnostic laboratories with a shared database, and (4) improved use of existing natural resources. These are in agreement with FAO *et al.* (2008).

In a baseline study conducted to evaluate the performance of OH surveillance system in Tanzania, the importance skilled human resource in surveillance approaches was demonstrated (Karimuribo *et al.*, 2012). In the same study, Karimuribo *et al.* (2014) also noted how sharing of vaccine storage facilities, transport and logistics by the collaborating sectors positively influenced the OH approach. In a questionnaire survey of medical, wildlife and veterinary officers in two districts in Tanzania, Kayunze *et al.*

(2014) found technical and operational capacities to be important factors in the implementation of OH. In particular, they found that adequate transport facilities for medical, veterinary and wildlife officers and common training in zoonotic diseases for both veterinary and medical doctors and fieldworkers were the two leading factors in support of OH implementation.

In Ghana, the OH health concept has supported and been supported by capacity building through Field Epidemiology and Laboratory Training (FELTP) (Wurapa *et al.*, 2011). The authors discuss the key areas of training that are important in realizing the OH approach, namely: response to public health emergencies; research on priority public health problems; applied epidemiology and laboratory development among others.

In Kenya, the ZDU has a number of technical and operational capacity building objectives for OH implementation including: strengthening surveillance, detection, prevention and control of zoonoses in both humans and animals; supporting testing and licensing of approved and commercially available vaccines for prevention of zoonotic diseases; promoting priority research on zoonoses including socioeconomic studies among others (Mbabu *et al.*, 2014).

2.6 Organizational Policies and Implementation of the OH Approach

Policy is broadly defined to include laws, regulations, judicial decrees, agency guidelines and budget priorities (Brownson, Chriqui, Katherine and Stamatakis, 2009). Brownson *et al.* (2009) observe that the top 10 health achievements of the 20th century have all been

influenced by policy change thus underscoring its importance in the implementation of evidence-based practices. The implementation of OH requires sectoral and intersectoral policies that enhance collaboration of the ministries responsible for human health, animal health and environment among other sectors (AVMA, 2008). Tess and Aith (2014), using a case study method, categorized intersectoral health-related social policies in Brazil into three categories, namely: health policies where the health sector is the coordinator but needs non-health sectors to succeed; policies with a sector other than health as coordinator but which needs health sector to succeed and genuinely inter-sectoral policies not led by any one sector but a specifically-appointed inter-sectoral coordinator.

There are few empirical studies on the role of policy in the implementation of OH. Degeling et al. (2015) in their study of scientific, ethical and political responses to emerging infectious diseases in Australia, assert that One Health approach, so far, has not included development of a comprehensive, ethically-informed policy and implementation framework a fact, they say, has limited its practical utility. Their study employed philosophical and qualitative methods based on critical review of existing literature.

Okello (2012) studied policy considerations for the implementation of OH approach in African countries. Using a multiple case study methodology, she examined livestock and public health policy processes at both local and national levels in Uganda and Nigeria with a view to exploring policy spaces for the inclusion of OH. The author discusses how the avian influenza (AI) pandemic brought a real re-awakening of the need for inter-sectoral collaboration in Nigeria with the formation of integrated task forces and

committees that were effective in fighting against the disease. These structures, she however notes, were donor funded and when AI was no longer a threat and donor funding stopped, their sustainability came to question. She attributed this state partly to policy processes that lacked technocratic consultation, were not connected to practice and lacked local perspectives. Okello (2012) further shows, using the Ugandan case study, how addressing a disease of local concern, Human African Trypanosomiasis led to the establishment of the Co-ordinating Office for the Control of Trypanosomiasis in Uganda, essentially espousing a One Health approach long before it became popular. She affirms the importance of politically endorsed One Health structures in sustaining its implementation. She also notes that the ecosystems perspective is still limited or absent from the majority of OH policy discourse and recommends increased inclusion in future policies.

In a questionnaire survey of medical, wildlife and veterinary officers in Ngorongoro and Kabaha Districts, Kayunze *et al.* (2014) found that OH health policy formulation rated among the top three factors that acted as enablers or bridges in the implementation of OH. This suggests that policy issues are critical in the implementation of OH. The study is, however, context specific and the results may not necessarily apply in other situations. Kayunze *et al.* (2014) argue that One Health policy or at least guidelines for mainstreaming One Health practices in human health and animal health systems can form a solid foundation on which to base plans for allocation of resources for One Health practice. Such plans have been recommended by various authors (Coker, Atun and

McKee, 2008; Brazier, Ratcliffe, Salomon and Tsuchiya, 2007; Rushton, Häsler, Haan and Rushton, 2012).

Coker et al. (2008) argue that lack of resources for health is mainly due to low allocation and recommend that the allocation of such resources should be understood as a cost-effective investment to support preparedness and resilience. Similarly, Brazier *et al.* (2007) urge governments to allocate resources to health through policy making and by planning noting that such resources allocation cannot be left to unregulated markets. Both Rushton *et al.* (2012) and Zinsstag *et al.* (2012) have stressed the need for systemic data collection and analysis to provide evidence of added value of OH to guide policy formulation.

2.7 Theoretical Framework

This study was guided by the following four theories: Structural-functionalism theory; social systems theory; structuration theory; and social network theory. These theories are briefly discussed and their relevance to the study explained below.

2.7.1 Structural Functionalism Theory

Structural functionalism is a sociological theory that attempts to explain why society functions the way it does by focusing on the relationships between various social institutions (Adams and Sydie, 2001). The early proponents of this theory include Emile Durkheim (1858-1917) and Herbert Spencer (1820-1903) (Adams and Sydie, 2001).

The theory was relevant to the current study as it explains how organizations have acquired unique specialized functions and yet they need to collaborate in order to operate optimally. The theory underpinned the research design whereby organizations with diverse specializations were selected for the current study. The theory reinforced the researcher's underlying assumption of the need for the specialized organizations to collaborate in the OH approach.

2.7.2 Social Systems Theory

The social systems theory is used to understand relationships that connect people and organizations, which ultimately contribute to a larger institution (Stichweh, 2011). The early proponents of the social systems theory are Talcott Parsons (1902-1979) and Niklas Luhmann (1927-1998) (Adams and Sydie, 2001).

The theory was relevant in the current study as it explains how the behaviour of personnel in organizations is influenced by their internal and external environments and how complexity in modern society has led to compartmentalized yet somewhat interconnected organizations. This theory informed the development of the conceptual framework of the study whereby internal relational factors such as leadership and external influences such as technology were understood to work together to influence the OH approach.

2.7.3 Structuration Theory

Structuration theory in sociology offers perspectives on human behaviour based on a combination of the effects of structure and agency known as the “duality of structure” (Gibbs, 2011). The theory posits that structures are created by humans but they in turn constrain and enable human action. Hence there is mutual dependency of structure and agency and none of the two overrides the other. The early proponent of this theory is Anthony Giddens (1938-).

The structuration theory was relevant in this study as it explains the importance of both the individuals in organizations and the institutional structures that govern them in determining the outcomes of programs. This theory also shaped the conceptual framework of the study, enabling the researcher to take a balanced look at the factors that influence implementation of the OH approach both at organizational or policy level as well as at individual level.

2.7.4 Social Network Theory

Social network theory is the study of how people, organizations or groups interact with others inside their networks by examining the individual pieces starting with the largest element, the networks, and working down to the smallest element, the actors (Wellman and Wortley 1990; Wellman, 1991). The proponents of this theory are George Simmel (1858-1918) and Jacob Moreno (1889-1974).

The social network theory was relevant in the current study as it explains the social relationships that influence inter-organizational collaboration. This theory underpinned the selection of organizations, departments and individuals in the study design. It also informed assumptions of how organizations share resources within their networks.

2.8 Conceptual Framework

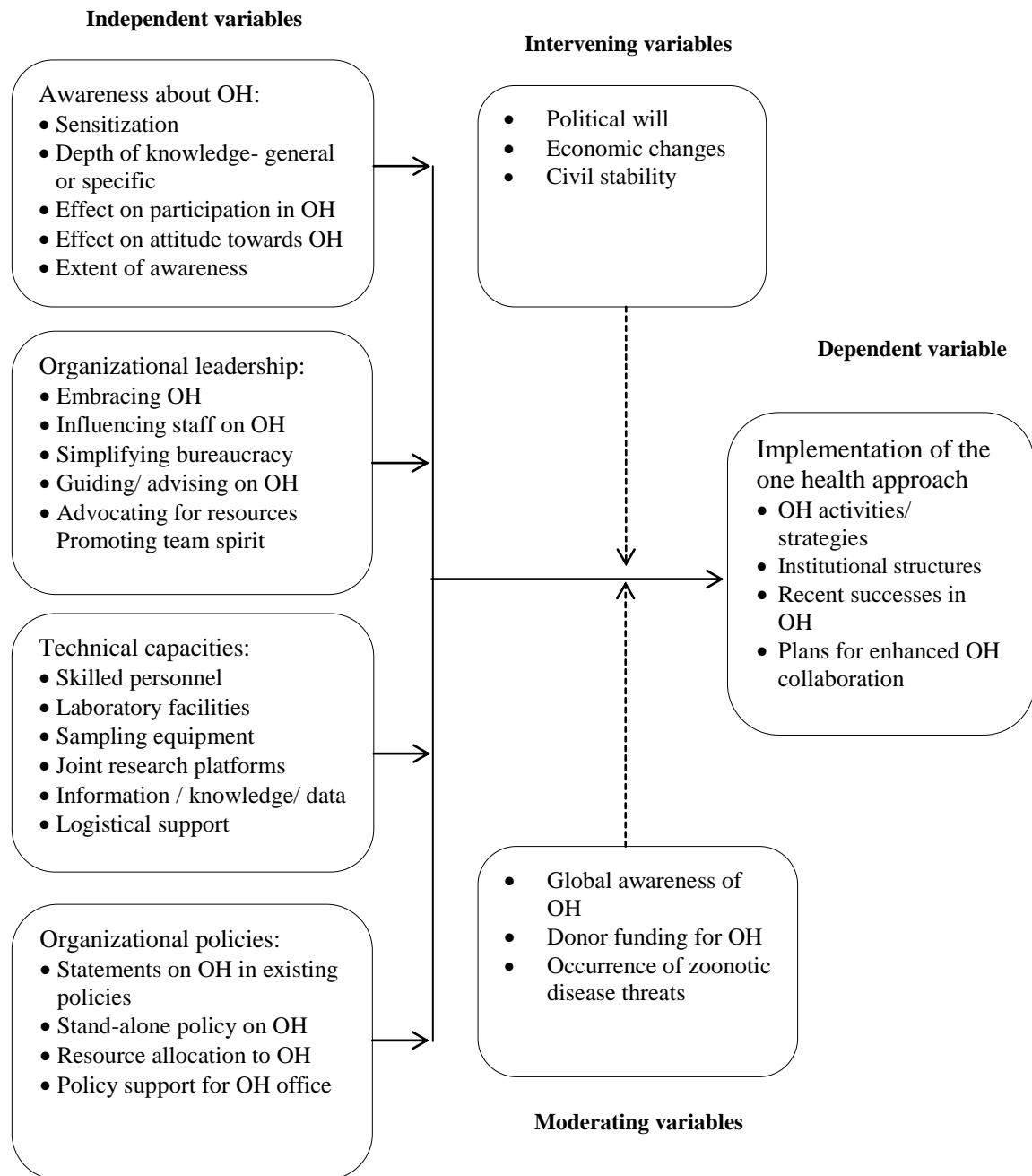


Figure. 1: Conceptual Framework of the Study

A high level of awareness about OH among personnel of government organizations responsible for human health, animal health and environment enhances cross-sectoral

collaboration in OH. Conversely, low level of awareness about OH among personnel of these organizations hinders cross-sectoral collaboration in its implementation. Collaborative leadership in government organizations responsible for human health, animal health and environment enhances cross-sectoral collaboration in OH. Conversely less collaborative leadership among these organizations hinders cross-sectoral collaboration in its implementation. Adequate technical and operational capacity in OH among organizations responsible for human health, animal health and environment enhances cross-sectoral collaboration in OH. Conversely inadequate technical and operational capacity in OH among these organizations hinders cross-sectoral collaboration in its implementation. Supportive policies for OH among government organizations responsible for human health, animal health and environment enhance cross-sectoral collaboration in OH.

2.9 Gaps in Literature Reviewed

There is a dearth of empirical literature on collaboration within the framework the OH approach. This is possibly due to the fact that OH is only about a decade old and its implementation at national level in concrete ways is only beginning to be realized recently -for instance the Kenya OH office was only established 2011 (Mbaabu *et al.*, 2014). The gaps in the literature on cross-sectoral collaboration factors and implementation of the OH approach are summarized in Table 2.1 below.

Table 2.1 Gaps in literature reviewed on cross-sectoral collaboration factors and the OH approach

| Factor | Gaps observed | Citation of Literature reviewed |
|----------------------|---|--|
| Awareness | <ul style="list-style-type: none"> • Little literature among governmental organizations exists on awareness and cross-sectoral collaboration. Most studies have focused on for-profit organizations • Paucity of literature on developing country context as most studies have been conducted in developed countries • Few studies have examined awareness in the context of the OH approach | <p>Bech, 2008; Alter and Hage (1993); Gebreyes <i>et al.</i> (2014); Okello <i>et al.</i> (2013); Bidaisee and Macpherson (2013); Okello <i>et al.</i>, (2011); Halliday <i>et. al.</i>, (2015)</p> |
| Leadership | <ul style="list-style-type: none"> • Studies on leadership have focused on intra-organizational situations and few cover leadership in the context of collaboration • Literature on cross-sectoral leadership mostly addresses developed countries and little exists on developing countries • Existing literature mostly focuses on for-profit and non-governmental organizations • Few studies have examined leadership in the context of the OH approach | <p>Aarons <i>et al.</i> (2014); Aarons <i>et al.</i> (2015); Deluca and Soucat (2013); Seims <i>et al.</i> (2012); Henry, (2015); Wooten <i>et al.</i> (2006); Waddock (2014); Crosby and Byson (2010); Clark (2008); Harman (2008); Gray and Sites (2013); Clark (2008); Aarons <i>et al.</i> (2009); Paananen (2015); Kayunze <i>et al.</i> (2014); Wurapa <i>et al.</i> (2011); Karimuribo <i>et al.</i> (2012); Mbabu <i>et al.</i> (2014); Wurapa <i>et al.</i> (2014);</p> |
| Technical capacities | <ul style="list-style-type: none"> • Little empirical literature on technical capacity and collaboration in general or in the context of the OH approach exists. Most literature is from conferences, commissioned reports and related literature. • Very few empirical studies exist that are highly context specific | <p>Rwego <i>et al.</i> (2016); OIE <i>et al.</i> (2008); Seimenis (2010); Gebreyes <i>et al.</i> (2014); FAO <i>et al.</i> (2008); Karimuribo <i>et al.</i>, 2012; Karimuribo <i>et al.</i> (2014); Kayunze <i>et al.</i> (2014); Wurapa <i>et al.</i>, 2011; Mbabu <i>et al.</i>, 2014</p> |
| Policies | <ul style="list-style-type: none"> • Few empirical studies have been done on policies and cross-sectoral collaboration in general and in the context of OH. Most extant literature is non-empirical from conference proceedings, commissioned reports | <p>Brownson <i>et al.</i> (2009); Tess and Aith (2014); Degeling <i>et al.</i> (2015); Okello (2012); Kayunze <i>et al.</i> (2014); Coker <i>et al.</i> (2008); Brazier <i>et al.</i> (2007); Salomon and Tsuchiya, 2007; Zinsstag <i>et al</i> (2012)</p> |

2.11 Summary of Literature Review

The OH approach by definition entails cross-sectoral collaboration among animal health, human health and environmental sectors towards attaining optimal health for all (American Veterinary Association, 2008). The approach has gained unprecedented momentum in the global research and development discourses over the last decade but its translation into practical action at national and grassroots levels is still weak (Gebreyes *et al.*, 2014). Many studies have looked into cross-sectoral collaboration among different types of organizations and factors such as level of awareness, leadership, capacities and policy stand out as among the key influencers (Ada, 2015; Liimatainen, 2015). Few of these studies have, however, looked into the factors that influence implementation of the OH approach (Okello *et al.*, 2014).

Level of awareness has been documented has a prerequisite to overcoming barriers to cross-sectoral collaboration (Alter and Hage, 1993; Bech, 2008). Although there are few empirical studies on how it influences implementation of OH, various researchers have alluded to its importance in operationalizing the approach in countries with low resource settings (Gebreyes *et al.*, 2014; Okello *et al.*, 2013; Halliday *et al.*, 2015).

Leadership is crucial in creating a strategic environment for implementation and sustainment of innovations (Aarons *et al.*, 2014; Aarons *et al.*, 2015; Deluca and Soucat, 2013). Relatively few studies, however, have treated the subject of leadership in the context of cross-sectoral collaboration in general (Henry, 2015) and even fewer in the context of OH. Leadership in these contexts demands unique skill sets needed to

maneuver social, political and economic institutions through decision making and implementation of policies (Wooten et al., 2006; Waddock, 2014). Few studies on OH have suggested implicitly that leadership is an important factor in the implementation of OH (Kayunze *et al.*, 2014; Wurapa *et al.*, 2011; Mbabu *et al.*, 2014).

The importance of technical and operational capacities in implementation of health related interventions in development literature most of which exists in the form of conference proceedings, agency reports and commissioned studies (OIE *et al.*, 2008; FAO *et al.*, 2008; World Bank, 2010). A few studies have shown the importance of capacities in the implementation of the OH approach (Seimenis, 2010; Gebreyes, *et al.*, 2014; Karimuribo *et al.*, 2012; Karimuribo *et al.*, 2014; Kayunze *et al.*, 2014; Wurapa *et al.*, 2011). These studies point to need for robust public health and animal health systems compliant to OIE and WHO in order to effectively implement OH.

Policy has been recognized as the backbone of any sustainable health related achievements including cross-sectoral collaboration (Brownson *et al.*, 2009; Tess and Aith, 2014). Degeling *et al.*, 2015 observe that OH implementation in Australia suffers from lack of a comprehensive policy and implementation framework. Okello (2012) has studied policy considerations for implementation of OH using Nigeria and Uganda as case studies. She demonstrates the importance of politically endorsed OH structures in sustaining its implementation. A few other studies have affirmed the importance of policy as factors influencing implementation of OH (Kayunze *et al.*, 2014; Coker *et al.*, 2008; Zinsstag *et al.*, 2012)

In conclusion, there is a dearth of literature on cross-sectoral collaboration factors within the framework of OH implementation. There are significant gaps in literature on how the factors under the current study, namely level of awareness, leadership, technical and operational capacities and policies influence implementation of the OH approach in Kenya.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter starts with introduction followed by description of the research design, target population, sample size and sampling technique and then research instruments including how they were piloted and their validity and reliability ensured. This is followed by description of data collection procedure, data analysis techniques, ethical considerations and finally operationalization of variables.

3.2 Research Design

The study used a mixed methods research design. According to Creswell (2013) this design employs both qualitative and quantitative research techniques in order to minimize the limitations of one technique. This design was appropriate for this study for several reasons. Firstly, the OH approach is a fairly complex construct and its practical implementation in Kenya is relatively new and still limited to specific technical fields in a few collaborating ministries. Secondly, the research questions of this study required gathering in-depth textual data in addition to respondents' attitudes and views to fully address them. A mixed method research design therefore provided the opportunity for a comprehensive and triangulated study of relatively small relevant target groups in order to understand a fairly complex and relatively new phenomenon.

3.3 Target Population

The study targeted technical personnel in three core organizations that work with ZDU to implement the OH approach, namely: the Directorate of Medical Services (DMS), the

Directorate of Veterinary Services (DVS) and the Kenya Wildlife Service (KWS). Within each of these organizations, the study further focused on the departments/ divisions that the ZDU recommended as being most relevant and likely to be engaged in OH approach activities. Outside the three organizations that engaged directly with ZDU, three other organizations implementing the OH approach were selected as sources of key informants to enrich and cross-validate the study. These were: the University of Nairobi's (UON) School of Public Health; the UON Faculty of Veterinary Medicine; and the Department of Wildlife Conservation and Management in the Ministry of Environment and Natural Resources (MENR). A total of 94 personnel from the selected organizations was determined as the population for the study.

3.4 Sample Size and Sampling Technique

A sample is a sub-set of the population from which data can be collected and analyzed at reasonable cost and used to make generalizations about the population parameters with ease (Kothari, 2004; Mugenda and Mugenda, 2012). Sample size is the number of units, subjects, objects or items in the sample.

3.4.1 Sample Size

The sample size was determined using the Yamane Taro formula which states that the desired sample size is a function of the target population and the maximum acceptable margin of error (sampling error) as is expressed mathematically as follows:

$$n = \frac{N}{1 + Ne^2}$$

Where:

n= required sample size

N= target population size

e= maximum acceptable margin of error

Applying the above formula to the target population of 94, the sample size for the study was 76.

Table 3.1 Sampling framework:

| Organization | Population | Sample size |
|--|-------------------|--------------------|
| Veterinary and medical personnel in ZDU | 2 | 2 |
| Medical and public health personnel in DMS/DSER | 11 | 8 |
| Veterinary personnel in the DVS | 54 | 44 |
| Veterinary and research personnel in the Veterinary and Capture and Education departments of KWS | 24 | 19 |
| Director School of Public Health | 1 | 1 |
| Dean Faculty of Veterinary Medicine | 1 | 1 |
| Director Department of Wildlife Conservation and Management MENR | 1 | 1 |
| Totals | 94 | 76 |

3.4.2 Sampling Techniques

The study used stratified random sampling to get respondents whereas the key informants were selected purposively. Four target groups were used as sampling strata, namely: veterinary and medical personnel in ZDU; medical and public health personnel in the Division of Disease Surveillance and Epidemic Response (DSER) of DMS; veterinary personnel in the DVS; and veterinary and research personnel in the Veterinary and Capture and the Education Departments of KWS. Samples were drawn from these groups

using simple random sampling or complete enumeration. Key informants were selected from the five groups and from three extra organizations using expert opinion on their in-depth knowledge and experience of the OH approach. They comprised: the Head of Capture and Veterinary Services Department of KWS, a Senior Research Scientist of KWS, Head Division of Disease Surveillance, Zoonoses and Vector Regulatory Services of the DVS, Head of ZDU from DMS, Dean of Faculty of Veterinary Medicine, Director school of Public Health and Director Department of Wildlife Conservation and Management in the Ministry of Environment and Natural Resources.

3.5 Research Instruments

The study used a semi-structured questionnaire, non-structured interview guide and review of documents. The questionnaire had clear instructions to ensure that respondents interpreted it in the same way. The questions were arranged logically and grouped in five sections: the first section covered demographic and background information and the remaining four focused on the objectives of the study. Closed questions used multiple choices or a Likert scale with five levels. Open-ended questions gave respondents an opportunity to explain their responses in narrative form. The interview guide provided for flexibility to elicit in-depth responses from key informants. Relevant documents were identified through discussions with ZDU personnel and they were accessed and reviewed to obtain qualitative data on the state of implementation of the OH approach

3.5.1 Piloting of the Instruments

The questionnaire was pre-tested using the method described by Mugenda and Mugenda (2003) and feedback from the respondents was used to improve the instrument as discussed by the authors. The study managed to pilot the questionnaire on 5 respondents drawn from ZDU, KWS and DVS to evaluate its completeness, accuracy and clarity of the questions.

3.5.2 Validity of the Instruments

Validity is the accuracy and meaningfulness of inferences, which are based on the research results (Mugenda and Mugenda, 2003). A measurement has validity when it reflects the construct you intend to measure, not other irrelevant constructs (Reaves, 1998).

To achieve validity, the instruments were shared with senior researchers from the University of Nairobi for constructive criticism and thereafter revised according to their comments. This was to ensure that they contained questions that contributed significantly towards answering the investigative questions with proper scope and coverage, clear wording, logical sequence, and appropriate structure including open and closed items. In addition, the researcher requested four experts familiar with the OH approach to provide their comments on the relevance of each of the items in the instruments and suggest improvements. The instruments were then revised taking into account their comments and suggestions.

3.5.3 Reliability of the Instruments

Reliability is a measure of the degree to which a research instrument yields consistent results or data after repeated trials under the same circumstances (Punch, 2005). The split-half method was used to test reliability of the instrument (Babbie, 2010). The instrument was administered to a test sample group. The total score for odd number items was correlated with the total score for even number items using Pearson's moment product correlation coefficient. The reliability coefficient was then calculated using the Spearman-Brown Prophecy formula as indicated below:

$$\text{Reliability of overall test} = (2 \times \text{reliability for } \frac{1}{2} \text{ tests}) / (1 + \text{reliability for } \frac{1}{2} \text{ tests})$$

A reliability value of 0.8 was obtained which was above the 0.7 considered as the minimum acceptable by Nunnally (1978).

3.6 Data Collection Procedure

Following the issuance of research approval by the University of Nairobi, the researcher applied for a research permit from the National Commission for Science Technology and Innovation (NACOSTI). Once this permit was obtained, the researcher sought research approval from the Kenyatta National Hospital and University of Nairobi Ethic and Research Committee (KNH-UoN ERC) to conduct research in the health field. After acquiring the ethics approval letter, the researcher further sought authorizations from the DMS, DVS and KWS to access and collect data from the respective organizations.

With the necessary authorization for the study, the target organizations were visited to arrange for appointments for the study. Key informants were interviewed using the

interview guide with probing questions as appropriate. Each interview was recorded carefully in a note book and coded to indicate date, organization and source. Questionnaires were administered by the researcher and similarly labeled.

3.7 Data Analysis Technique

Returned questionnaires were labeled for ease of tracking. Data from questionnaires was checked as soon as possible after it was collected for completeness and consistency. Any contextual mistakes, omissions and missing responses that should be filled or disregarded were noted and treated accordingly. The data was then coded, entered into computer software, the Statistical Package of Social Science (SPSS), and analyzed using descriptive and correlational statistics. Data from interviews was transcribed and subjected to thematic analysis in order to identify and interpret frequently occurring themes. Qualitative data was presented using rich text while quantitative data was presented using descriptive tables and correlational statistical figures. The study used 0.01 and 0.05 levels of significance for inferential statistics.

3.8 Ethical Consideration

Prior to data collection a research permit was secured from NACOSTI. The research instruments were approved by the supervisors prior to use and respondents participated through informed consent.

3.9 Operationalization of Variables

Table 3.2 Operationalization of variables for the study

| Objectives/Research Questions | Variable/ type of variable | Indicators | Measurement scale | Method of data collection | Instrument/Data collection tools | Data Analysis Technique |
|---|--|---|--|---|--|--|
| 1.To examine the influence of awareness about the OH approach among personnel of human, animal and environmental health organizations on collaboration in its implementation in Kenya | Awareness about OH/ independent | <ul style="list-style-type: none"> • Sensitization on OH • Level of knowledge on OH • Attitude about OH approach • Participation in OH approach | <ul style="list-style-type: none"> • Nominal • Ordinal | <ul style="list-style-type: none"> • Administer questionnaire • Conduct interview | <ul style="list-style-type: none"> • Questionnaire • Interview guide | <ul style="list-style-type: none"> • Thematic analysis • Frequencies and percentages • Inferential statistics |
| 2. To establish the influence of the leadership of human, animal and environmental health organizations on implementation of OH approach in Kenya. | Organizational leadership/ independent | <ul style="list-style-type: none"> • Embracing the OH approach • Influencing staff to practice OH approach • Simplifying bureaucracy • Guiding and advising on OH • Advocating for resources for OH approach • Promoting team spirit • Rotational/chairing co-chairing of meetings | <ul style="list-style-type: none"> • Nominal • ordinal | <ul style="list-style-type: none"> • Administer questionnaire • Conduct interview | <ul style="list-style-type: none"> • Questionnaire • Interview guide | <ul style="list-style-type: none"> • Thematic analysis • Frequencies and percentages • Inferential statistics |
| 3. To determine the influence of operational and technical capacities of human, animal and environmental health | Technical capacities/ independent | <ul style="list-style-type: none"> • Skilled personnel • Laboratory facilities • Sampling equipment • Joint research platforms | <ul style="list-style-type: none"> • Nominal • ordinal | <ul style="list-style-type: none"> • Administer questionnaire • Conduct interview | <ul style="list-style-type: none"> • Questionnaire • Interview guide | <ul style="list-style-type: none"> • Thematic analysis • Frequencies and percentages |

| | | | | | | |
|--|---------------------------------------|--|--|---|-----------------|---|
| personnel on implementation of OH approach in Kenya. | | <ul style="list-style-type: none"> • Information / knowledge/ data • Logistical support • Contingency plans | | • | | • Inferential statistics |
| 4. To examine the influence organizational policies on implementation of OH approach in Kenya. | Organizational policies / independent | <ul style="list-style-type: none"> • Policies with statements on OH approach • Stand-alone policy on OH approach • Resource allocation to OH approach • Legal and policy support for OH office | <ul style="list-style-type: none"> • Nominal • Ordinal | <ul style="list-style-type: none"> • Administer questionnaire • Conduct interview | Interview guide | <ul style="list-style-type: none"> Thematic analysis Inferential statistics |
| | Implementation of OH/ Dependent | <ul style="list-style-type: none"> • On-going OH activities • Institutional structures for OH • Recent successes in OH • Plans for enhanced OH collaboration | <ul style="list-style-type: none"> • Nominal | <ul style="list-style-type: none"> Review documents Observe | Checklist | Thematic analysis |

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION AND INTERPRETATION

4.1 Introduction

The main purpose of this research was to investigate the influence of cross-sectoral collaboration factors on implementation of the OH approach in Kenya. In particular, the study sought to establish the influence of level of awareness, organizational leadership, technical capacities and organizational policies on implementation of the OH approach in Kenya. The results of the study are presented using frequencies, percentages, inferential statistics and rich text. This chapter focuses on the data analysis, interpretation and presentation of the findings.

4.2 Response Rate

Seventy one (71) questionnaires were distributed and 53 respondents filled and returned them, which represents a 74% response rate. This is a reliable response rate for data analysis. Mugenda and Mugenda (2003) state that a response rate of 50% is adequate for analysis and reporting while a response rate of 60% is good and above 70% is rated very good. In addition, seven key informants that were targeted for the study were all interviewed thus bringing the total number of people from whom data was obtained to 60.

4.3 Demographic Characteristics of the Respondents

The research requested the respondents to indicate their gender, age, working duration, level of academic qualification, and job deployment. The results of these characteristics are summarized in this section.

4.3.1 Gender of the Respondents

The study sought to establish the gender distribution of respondents in order to determine if there were any significant differences in opinions regarding the implementation of the One Health approach between the gender groups and whether gender balance was an issue. The results are summarized in Table 4.1. The respondents comprised of 37/53 (69.8%) males and 16/53 (30.2 %) females suggesting that there is gender imbalance among technical personnel involved in the implementation of the OH approach with majority being male.

Table 4.1 Gender of the Respondents

| | Frequency | Percent |
|--------------|------------------|----------------|
| Male | 37 | 69.8 |
| Female | 16 | 30.2 |
| Total | 53 | 100 |

4.3.2 Age of the Respondents

The study asked respondents to indicate their ages under four age categories, namely: 22-35 year, 36-45 years, 46-55 years and above 55 years. This data was used to determine whether the opinions of respondents regarding the implementation of the OH approach differed significantly among different age groups. The results on age distribution of respondents are presented in Table 4.2.

From the findings, 19/53 (35.8%) of the respondents were aged 46-55 years, 12/53 (22.6%) were aged 36-45 years, another 12/53 (22.6%) were aged 22-35 years and 10/53

(18.9 %) were above 55 years. This shows that the ages of respondents were almost evenly distributed among the four age categories except for the 46-55 year category that had majority. Overall, 41/53 (77%) of them were aged 36 years and above and could be therefore be expected to have well-formed opinions about many issues in their fields of work including the OH approach.

Table 4.2 Age of the respondent

| | Frequency | Percent |
|--------------|------------------|----------------|
| 22-35 yrs | 12 | 22.6 |
| 36-45 yrs | 12 | 22.6 |
| 46-55yrs | 19 | 35.8 |
| Above 55 yrs | 10 | 18.9 |
| Total | 53 | 100.0 |

4.3.3 Length of Service of the Respondents

The researcher also sought to determine how long respondents had worked in their current organizations using four categories, namely: 4 years and below, 5-10 years, 11-15 years and 16 years and above. The results on length of service of respondents are presented in Table 4.3.

The analysis showed that 23/53 (43.4%) of the respondents had worked for over 16 years, 16/53 (30.2 %) had worked for 5-10 years, 6/53 (11.3%) had worked for 11-15 years, and 2/53 (3.8 %) for 4 years and below. This shows that 51/53 (85%) of the respondents had served for 5 years and above in their organizations. They could therefore be expected to be well-versed with technical issues in their field of work such as the OH approach.

Table 4.3 Length of service of the respondents

| | Frequency | Percent |
|------------------|------------------|----------------|
| 4 yrs and below | 2 | 3.8 |
| 5-10 yrs | 16 | 30.2 |
| 11-15 yrs | 6 | 11.3 |
| 16 yrs and above | 23 | 43.4 |
| Not indicated | 6 | 11.3 |
| Total | 53 | 100.0 |

4.3.4 Seniority of Respondents

The study sought to establish the distribution of respondents' seniority within their respective organizations according to the current government scheme of service. This was important because respondents' knowledge and opinions on different technical, management and policy issues are influenced by their levels of exposure which in turn is usually shaped by their levels of seniority within their organizations. The results on respondents' job designations are presented in Table 4.4.

From the findings, 25/53 (47.2%) of the respondents in the study were at the levels of Assistant Director to Deputy Director, 16/53 (30%) were Senior Officers in different health related professional fields, 8/53 (15.1%) of them were at the level of Veterinary Officer and 4/53 (7.5%) were at the level of Veterinary Technologist. This shows that 41/53 (77 %) of respondents were senior staff in their respective organizations that would be expected to have excellent knowledge and exposure on most technical, management and policy issues in their fields of work. The lower cadres could also be expected to have

adequate knowledge and exposure on important issues by virtue of their longevity of service in their organizations. Most of the respondents could therefore be expected to provide reliable responses to questions asked in the study.

Table 4.4. Job designations/ deployment of respondents

| | Frequency | Percent |
|---|------------------|----------------|
| Assistant Director to Deputy Director level | 25 | 47.2 |
| Senior Veterinary, Medical, Clinical and Public Health Officers | 16 | 30.2 |
| Veterinary Officers | 8 | 15.1 |
| Veterinary Technologists | 4 | 7.5 |
| Total | 53 | 100.0 |

4.3.5 Academic Qualifications of Respondents

The researcher further asked respondents to state their highest academic qualifications. This was important because education shapes the opinions of professional workers on various issues related to their work. The results of respondents' professional qualifications are presented in Table 4.5.

The findings showed that 32/53 (60%) of the respondents had attained Master's degrees, 6/53 (11.3%) had PhD degrees, 13/53 (24.5%) had Bachelor's degrees, and 2/53 (3.8%) had diplomas. This shows that most of the respondents were well qualified in their professions with 47/53 (70%) having Master's degrees or above and 51/53 (95%) having at least Bachelor's degrees. Majority of the respondents could therefore be expected to provide reliable responses to the questions that the study sought to answer.

Table 4.5 Highest academic qualifications of respondents

| | Frequency | Percent |
|-------------------|------------------|----------------|
| PhD | 6 | 11.3 |
| Master's Degree | 32 | 60.4 |
| Bachelor's degree | 13 | 24.5 |
| Diploma | 2 | 3.8 |
| Total | 53 | 100 |

4.4 Awareness and Implementation of the OH Approach

The study sought to determine respondents' levels of awareness and state of sensitization about the OH approach and how these had influenced their participation in its implementation. It further sought to establish organization-wide levels of awareness about the OH approach in the organizations studied and how these influenced its implementation. The study also obtained respondents' suggestions on how awareness about the OH approach could be enhanced. The findings on these aspects are discussed in this section.

4.4.1 Respondent's Levels of Awareness

The study asked respondents to rate their own levels of awareness about the OH approach on a scale comprising of five choices, namely: 1, very low; 2, low; 3, average; 4, high; and 5, very high. The results are summarized in Table 4.6.

Table 4.6 Respondents' levels of awareness about OH approach

| | Frequency | Percent |
|--------------|------------------|----------------|
| Very low | 1 | 1.9 |
| Low | 4 | 7.5 |
| Average | 16 | 30.2 |
| High | 23 | 43.4 |
| Very high | 9 | 17 |
| Total | 53 | 100.0 |

The findings show that 23/53 (43.4%) of the respondents had a high level of awareness, 9/53 (17%) very high, 16/53 (30.2%) average, 4/53 (7.5%) low and (1/53)1.9% very low. This shows that only 5/53 (9 %) of the respondents had a low or very low level of awareness: the remaining 48/53 (91%) could therefore be considered to have an adequate level of awareness about the OH approach. The analysis further shows that 32/53 (60%) of the respondents had in-depth understanding about the OH approach as they scored themselves high or very high. Furthermore, one would expect knowledge-based workers as those in the current study to be conscious of their levels of awareness about any subject and to depict it fairly reliably. The findings therefore confirm that there is a good level of awareness about the OH approach within the divisions/departments of MOH, DVS and KWS that were sampled for the study.

The Spearman's Rank Order Correlation was run to determine relationships between respondents' levels of awareness and their demographic characteristics, namely: age, gender, duration of work, and job designation. There were no significant correlations between awareness and the demographic characteristics except academic qualifications.

The latter was coded for correlation analysis into four levels; 1, Diploma; 2, Bachelor’s degree; 3, Master’s degree; and 5, Doctor of philosophy. There was a weak but statistically significant positive correlation between level of awareness and academic qualifications ($R_s(51) = 0.37, p = 0.007$) (Table 4.7). This suggests that awareness about the OH approach is influenced by the level of education as would be expected since it is a technical and fairly new concept.

Table 4.7 Correlation between awareness and academic qualifications

| | | | Highest academic qualifications | Level of awareness about the OH Approach |
|----------------|--|-----------------|---------------------------------|--|
| Spearman's rho | Highest Academic qualifications | Correlation | 1.000 | .365** |
| | | Coefficient | | |
| | | Sig. (2-tailed) | . | .007 |
| | Level of awareness about the OH Approach | N | 53 | 53 |
| | | Correlation | .365** | 1.000 |
| | | Coefficient | | |
| | | Sig. (2-tailed) | .007 | . |
| | | N | 53 | 53 |

** . Correlation is significant at the 0.01 level (2-tailed).

4.4.2 Respondents’ Sensitization about the OH Approach

The study asked respondents to indicate whether they had been sensitized about the OH approach or not. The results are presented in Table 4.8. From the analysis, 37/53 (69.8%) of the respondent indicated that they had been sensitized while 14/53 (26.4%) indicated that they had not been sensitized. A minority of 2/53 (3.8%) did not respond. These findings confirm that the departments/divisions of MOH, DVS and KWS targeted for the study were well sensitized about the OH approach.

Table 4.8 Respondents' states of sensitization about the OH approach

| | Frequency | Percent |
|--------------|-----------|--------------|
| Yes | 37 | 69.8 |
| No | 14 | 26.4 |
| No response | 2 | 3.8 |
| Total | 53 | 100.0 |

The Spearman's Rank Order Correlation was run to determine relationships between respondents' levels of awareness and their sensitization. For the analysis, the responses on sensitization were coded as: 1, 'No' and 2, Yes. The results are presented in Table 4.9.

Table 4.9. Correlation between respondents' levels of awareness and sensitization

| | | | Level of awareness about the OH Approach | Have you been sensitized? |
|----------------|--|-----------------|--|---------------------------|
| Spearman's rho | Level of awareness about the OH Approach | Correlation | 1.000 | .552** |
| | | Coefficient | | |
| | | Sig. (2-tailed) | . | .000 |
| | | N | 53 | 53 |
| | Have you been sensitized? | Correlation | .552** | 1.000 |
| | | Coefficient | | |
| | | Sig. (2-tailed) | .000 | . |
| | | N | 53 | 53 |

****.** Correlation is significant at the 0.01 level (2-tailed).

There was a moderate and statistically significant positive correlation between respondents' levels of awareness and their sensitization on the OH approach ($R_s(51) = 0.55, p < 0.001$). This shows that awareness and sensitization are closely associated and suggests that sensitization about the OH approach is an important aspect in enhancing awareness about the approach.

The study further sought to determine the means by which respondents had been sensitized by asking them to explain. The results are presented in Table 4.10. Only 36 respondents, comprising of those who had been sensitized, explained how they had been sensitized. The analysis shows that 20/36 (55.6%) had been sensitized through meetings such as training workshop, conferences, seminars and professional association meetings, 8/36 (22.2%) through participation in developing and implementing action plans and other OH approach activities, 4/36 (11.1%) through academic studies, especially Master's degrees related to public health, and another 4/36 (11.1%) through media and internet. These findings suggest that majority 28/36 (78%) of personnel in the studied departments/divisions have been sensitized through meetings or through implementing activities related to the OH approach while a small proportion of 8/36 (22%) has been sensitized through media, internet and academic studies.

Table 4.10. Respondents' modes of sensitization about the OH approach

| | Frequency | Percent |
|--------------------|------------------|----------------|
| Meetings | 20 | 55.6 |
| Implementation | 8 | 22.2 |
| Media and internet | 4 | 11.1 |
| Academic studies | 4 | 11.1 |
| Total | 36 | 100 |

4.4.2 Respondents Knowledge of Specific Facts about the OH Approach

The study evaluated respondents' knowledge about OH approach through factual questions about the key ministries involved in the OH approach and the functions of the ZDU and the ZDTWG. The findings are discussed in this sub-section

The analysis of respondents' answers regarding the key ministries involved in implementation of the OH approach in Kenya is presented Table 4.11.

Table 4.11. Respondents' understanding of the key ministries in the OH approach

| | Frequency | Percent |
|--|-----------|------------|
| Ministry of Health and Ministry of Agriculture, Livestock and Fisheries | 39 | 73.6 |
| Ministry of Health, Ministry of Agriculture, Livestock and Fisheries and Ministry of Environment and Natural Resources | 14 | 26.4 |
| Total | 53 | 100 |

From the analysis, 39/53 (73.6%) of the respondents stated that the key ministries involved in the OH approach in Kenya were the MOH and MALF and only 14/53 (26.4%) indicated that the MENR was also involved in addition to the other two ministries. This shows that a larger proportion of the respondents did not appreciate that MENR was a core ministry in implementation of the OH approach. This could be expected since the MENR, though currently considered a core player in the OH approach, has not been institutionally well integrated into it. The memorandum of understanding that formed ZDU, for instance, is bi-partite between the MOH and MALF/DVS. Although the KWS is a parastatal within MENR, its VCD which participates actively in the OH approach is possibly identified more with the MALF/DVS by most people since it largely deals with animal health issues. This might explain the gap in appreciation of the role of MENR in implementation of the OH approach by the DVS and MOH personnel.

The analysis of respondents' answers regarding the functions of ZDU is presented in Table 4.12.

Table 4.12 Respondents understanding of the functions of ZDU

| | Frequency | Percent |
|-----------------------|------------------|----------------|
| Coordination function | 43 | 81.1 |
| Secretariat of ZDTWG | 5 | 9.4 |
| Not aware/No idea | 5 | 9.4 |
| Total | 53 | 100 |

From the results, 43/53 (81.1%) of the respondents indicated that the function of ZDU is coordination, 5/53 (9.4%) specified that it is the secretariat of ZDTWG while another 5/53 (9.4%) were not aware. The results therefore show that most of the respondents understood the coordination functions of ZDU but were not necessarily aware of its function as secretariat of the ZDTWG. This suggests that there is a gap among personnel in appreciating ZDU as the secretariat of the ZDTWG.

The analysis of respondents' answers to the question on the functions of the ZDTWG is presented in Table 4.13. From the analysis, 37/53 (69.8%) of the respondents indicated that the function of ZDTWG is coordination, 9/53 (17%) indicated it is implementation and 9/53 (13.2%) were not aware. This shows that most of personnel in the divisions/departments sampled appreciated the coordination role of ZDTWG while a significant 18/53 (30.2%) either misconstrued the function to be implementation or were not aware at all. None of the respondents however, appreciated the oversight role of the

ZDTWG. The findings suggest that there is a gap among personnel in appreciating fully the functions of the ZDTWG.

Table 4.13. Respondents' knowledge of the functions of ZDTWG

| | Frequency | Percent |
|--------------------------|-----------|--------------|
| Coordination functions | 37 | 69.8 |
| Implementation functions | 9 | 17.0 |
| Not aware/No idea | 7 | 13.2 |
| Total | 53 | 100.0 |

The Spearman's Rank Order Correlation was run to determine relationships between respondents' state of sensitization and their knowledge of the specific facts about the OH approach (Table 4.14). Responses to the questions were divided into two categories, namely: 1, Reject; and 2, accept for wrong and right responses, respectively.

Table 4.14 Correlation between sensitization and knowledge of functions of ZTWG

| | | | Knowledge of functions of ZTWG | Have you been sensitized? |
|--------------------|--------------------------------------|---|--------------------------------------|---------------------------------|
| Spearman 's rho | Knowledge of functions of ZTWG | Correlation Coefficient Sig. (2-tailed) N | 1.000 . 53 | .340* .013 53 |
| | Have you been sensitized? | Correlation Coefficient Sig. (2-tailed) N | .340* .013 53 | 1.000 . 53 |

*. Correlation is significant at the 0.05 level (2-tailed).

From the analysis, there was a weak but significant positive correlation between respondents' knowledge of the functions of ZTWG and their sensitization ($R_s(49) = 0.43$,

$p = 0.001$) (Table 4.14). This suggests that sensitizations about the OH approach could have positively influenced personnel’s knowledge about existence of ZTWG which is an important OH organ.

4.4.3 Organization-wide Levels of Awareness

The study asked respondents to score their respective organizations’ levels of awareness about the OH approach on a five-level scale comprising: ‘very low’, ‘low’, ‘average’, ‘high’ and ‘very high’. The results are presented in Table 4.15. This was corroborated with key informant interviews.

Table 4.15 Respondents’ score of organization-wide levels of awareness

| | Frequency | Percent |
|--------------|-----------|--------------|
| Very low | 2 | 3.8 |
| Low | 8 | 15.1 |
| Average | 29 | 54.7 |
| High | 9 | 17.0 |
| Very high | 3 | 5.7 |
| No response | 2 | 3.8 |
| Total | 53 | 100.0 |

From the findings, 29/53 (54.7%) of the respondent rated the levels of awareness about the OH approach in their organizations to be average, 9/53 (17%) indicated that it was high, 3/53 (5.7%) indicated it was very high, 8/53 (15.1%) indicated it was low and 2/53 (3.8%) very low. The analysis shows that 12/53 (22%) of respondents rated the organization-wide levels of awareness as high or very high compared to 32/53 (60%) who rated their individual levels of awareness as high or very high This suggests that

organization-wide levels of awareness about the OH approach were lower than those of the group studied.

Since the organizations under study were quite large and each had varied functions, some of them not directly related to the OH approach, respondents' ratings of organization-wide levels of awareness might be expected to be highly subjective. The large proportion of respondents (29/53) rating their organizations' levels of awareness as average is tricky to interpret: it may reflect a considerable degree of uncertainty among respondents about the level of organization-wide awareness as respondents that were unsure about the level might be inherently biased towards scoring average. On the other hand, some respondents could have projected their individual levels of awareness to the organization-wide levels while others could have misconstrued organization to mean their departments or divisions. Nevertheless, the findings suggest that the organization-wide levels of awareness are much less than those of the divisions or departments sampled for the study.

Key informants gave further explanations on organization-wide levels of awareness about OH approach as they made distinctions between the levels of awareness in their departments/ divisions and the levels in their wider organizations. All the key informants from MOH, DVS and KWS qualified that level of awareness about the OH approach was high within specific departments, divisions or sections but it was low in the wider organization. They clarified that the depth of understanding about the approach varied across the wider organizations and even within the departments directly involved in

implementing the OH approach based on the nature of work, training background, exposure and seniority of the personnel. One key informant stated:

“I could say about 80% of the people in my department are aware about the OH approach... Depth of awareness varies with exposure ... the highest cadres are more exposed...(Other) departments (in the organization) that are not health-oriented are not well aware due to training background of personnel,...interest and nature of work”

4.4.4 Influence of Awareness on Implementation of the OH Approach

The study asked respondents and key informants to explain how awareness about the One Health approach had influenced their participation in its implementation. The results of the thematic analysis of respondents’ explanations are summarized in Table 4.16 and subsequently interpreted alongside the key informant data.

Table 4.16. Influence of respondents’ awareness on their participation in OH approach

| | Frequency | Percent |
|-------------------------|------------------|----------------|
| Little or no influence | 18 | 34.0 |
| Advance in career | 13 | 24.5 |
| Enhanced enthusiasm | 5 | 9.4 |
| Increased participation | 11 | 20.8 |
| No response given | 6 | 11.3 |
| Total | 53 | 100.0 |

From the findings, 11/53 (20.8%) of the respondents indicated that increased awareness about the OH approach had increased their participation in its implementation. The

analysis further shows that 13/53 (24.5%) of the respondents pointed out that increased awareness about the approach had contributed to advancement in their careers. A few (5/53 or 9.4%) stated that understanding of the OH concept had made them more enthusiastic at their work. The greatest proportion (18/53 or 34 %), however, indicated that awareness about the OH approach had little or no influence on their participation in implementing the approach. A few (6/53 or 11.3%) gave no response.

These results show that although awareness about OH approach has a positive influence on a proportion (29/53 or about 55%) of personnel in terms of increased participation in implementation, greater enthusiasm and even advancement in careers, a significant proportion may not yet have experienced any practical impact associated with awareness about the approach. This finding was supported by information from key informants most of whom explained that practical application of the OH approach was quite low in their departments and restricted to specific groups. One key informant confessed:

“A general awareness of OH exists within the Directorate but proper understanding of its practical application is limited to a small group that is involved with it on a day-to-day basis. In fact that is one of the things which has been discussed in meetings... we need to create awareness within ourselves so that all levels in the two ministries understand what One Health is”

Some of the key informants pointed out that a general awareness about the OH approach did not necessarily translate to participation in its practical implementation. One key

informant from an institution of higher learning collaborating in the implementation of OH approach observed:

“The level of awareness about OH in the School is high....sensitization workshops have been undertaken for staff over the years. However, the practice of OH is what is not as it should be. Among the staff there is limited application of the approach. There are still silos in animal health and human health. Co-teaching students from different faculties on common courses could improve the practise.”

One key informant explained that inadequate sensitization on the application aspect of OH approach and existence of bureaucratic barriers resulted in low level of practical implementation of the approach despite personnel being generally aware about it He stated:

“People know what OH health is but practical application is limited partly due to limited sensitization on its application. Its application across organizations is even less successful due to legal and bureaucratic barriers...you realize when you are trying to get a resource or knowledge or whatever from outside it is limited either through laws or bureaucracy and it is just going to waste your time, so you do what you can...”

In order to gain a better understanding of the influence of awareness on implementation of the OH approach, the study asked respondents to score a number of propositions on a five-point Likert scale comprising: 1, strongly disagree; 2, disagree; 3, neither agree nor

disagree; 4, agree; and 5, strongly agree. The results are presented further on in this section (Table 4.17).

From the analysis, 69.8% of the respondents acknowledged that sensitization about the OH approach had enabled them to understand how the approach was being implemented in their organizations: 28.3% of them strongly agreed and 41.5% agreed to the statement whereas 13.7% were neutral and 13.7% refuted the statement.

Table 4.17. Respondents' views on awareness and the OH approach

| | 5 | 4 | 3 | 2 | 1 |
|---|-------------|-------------|-------------|------------|------------|
| | (%) | (%) | (%) | (%) | (%) |
| a) Sensitization about the OH approach has enabled me to know about the approach and how it is implemented in Kenya | 29.4 | 43.1 | 13.7 | 5.9 | 7.8 |
| b) Increased awareness about the OH approach has created in me a positive attitude towards collaborating with colleagues from other disciplines, organizations and sectors in matters of health | 39.2 | 37.3 | 7.8 | 9.8 | 5.9 |
| c) Increased awareness about the OH approach has enhanced collaboration between my organization and organizations from other sectors on matters of health | 29.4 | 39.2 | 17.6 | 11.8 | 2.0 |
| d) Awareness about the OH approach in my organization is limited to a narrow cadre of technical personnel that deal with specific aspects of health | 67.9 | 15.1 | 9.4 | 7.5 | .0 |
| e) Awareness creation is a major gap in the implementation of OH approach in Kenya | 69.2 | 19.2 | 3.8 | 5.8 | 1.9 |
| Cell average | 47.0 | 30.8 | 10.5 | 8.2 | 3.5 |

Likewise, 76.5% of the respondents admitted that awareness about OH approach had created in them a positive attitude towards working with other disciplines, organizations

and sectors: 39.2% strongly agreed and 37.3% agreed whereas 7.8% were neutral while 15.7% refuted the statement. Similarly, 68.6% of the respondents affirmed that awareness about the OH approach was important in enhancing collaboration between their organizations and other organizations: 29.4% strongly agreed and 39.2% agreed while 17.6% were neutral and 13.8% refuted the statement.

A majority (83%) of the respondents acknowledged that awareness about the OH approach in their organizations was limited to a narrow spectrum of technical personnel: 67.9% strongly agreed and 15.1% agreed while 9.4% were neutral and another 7.5% refuted the statement. Similarly, 86.8% of the respondents admitted that awareness remained a major gap in the implementation of OH approach in their organizations: 67.9% strongly agreed and 18.9% agreed while 5.8% were neutral and 7.7% refuted the statement.

The preceding findings on awareness about the OH approach show that the awareness has positively influenced personnel at cognitive and attitudinal levels as well in practical ways such as participation in implementation of the approach and advancement of careers. However, the findings further suggest that awareness is limited to a narrow spectrum of the personnel within the respective collaborating organizations and that it remains a major gap in implementation of the approach.

4.4.5 Improvement of Awareness about OH Approach

The study sought respondents' suggestions on how levels of awareness about OH approach in their organizations could be enhanced. The results of the thematic analysis are presented in Table 4.18.

Table 4.18 Respondents' suggestions on how to improve awareness about the OH approach

| Suggestion | Frequency | Percent |
|-----------------------------------|------------------|----------------|
| Scaling up sensitization | 27 | 50.9 |
| Enhancing training on OH | 10 | 18.9 |
| Expanding participation | 9 | 17.0 |
| Lobbying and advocacy on OH | 2 | 3.8 |
| Allocation of resources to OH | 2 | 3.8 |
| Devolving OH approach to counties | 1 | 1.9 |
| No response | 2 | 3.8 |
| Total | 53 | 100.0 |

Majority of respondents (27/53 or 50.9%) suggested scaling up sensitization about the OH approach through seminars/ workshops various types of media, print, electronic, social media, radio and T.V, including vernacular languages. Some (10/53 or 18.9%) suggested enhancing training on OH approach through curriculum reviews at all levels and short pre-service and in-service training courses including accreditation of courses with continuous professional development points. Others (9/53 or 17%) proposed expanding participation beyond the disease surveillance and control teams that are currently involved in the OH approach on a day-to-day basis. A few suggested other

interventions such as: undertaking advocacy for the OH approach (2/53 or 3.8%); allocation of more resources for its implementation (2/53 or 3.8%); and devolving the approach to counties (1/53 or 1.9%).

The findings suggest that most personnel acknowledge that scaling up sensitization on the OH approach is one of the most important interventions necessary to enhance implementation of the approach. This should be backed by pre- and post-service training on the approach and expansion of public participation on the same. These measures require allocation of resources which cannot be achieved without advocacy since top government leaders are not yet well sensitized about the approach. Furthermore, it is necessary that the approach is devolved to counties since this is where activities are implemented.

4.5 Leadership and Implementation of the OH Approach

In order to establish the influence of leadership on implementation of the OH approach, the study asked respondents to give their views on the following: the level to which they had played leadership roles in implementation of the OH approach; the ways in which they had supported the approach; how other leaders had influenced them in implementing the approach; statements about leadership roles and implementation of the OH approach on a Likert scale; the leadership functions they considered most important for the implementation of the approach; and their suggestions on how the current leadership and/or organizational structure could be improved for the implementation of the OH

approach. These aspects were corroborated with key informant interviews. The findings of these analyses are presented and interpreted in this section.

4.5.1 Level of Leadership Involvement in Implementation of the OH Approach

To determine the level of leadership involvement in implementation of the OH approach, respondents were asked to score the extent to which they had played leadership roles in the implementation of approach. The scale comprised: 1: very low; 2: low; 3: average; 4: high; and 5: very high. The results of the analysis are summarized in Table 4.19.

Table 4.19. Respondents level of leadership in implementation of OH approach

| | Frequency | Percent |
|--------------|------------------|----------------|
| Very low | 16 | 30.2 |
| Low | 5 | 9.4 |
| Average | 21 | 39.6 |
| High | 9 | 17.0 |
| Very high | 2 | 3.8 |
| Total | 53 | 100.0 |

From the findings, 16/53 (30.2 %) of the respondents scored themselves very low, 5/53 (9.4 %) scored themselves low, 21/53 (39.6 %) scored themselves average, 9/53 (17%) scored themselves high and 2/53 (3.8 %) very high. Therefore majority of the respondents (42/53 or 79.2%) perceived their participation in leadership in the OH approach as average and below while the remaining 11/53 (20.8 %) felt that they had provided significant leadership in the approach.

The large proportion (21/53, 39.6%) of respondents indicating average level of personal engagement in leadership capacities in the OH approach could include: respondents who were uncertain about the question; those who simply chose to be modest about their levels of engagement despite being significantly engaged; those who were not significantly engaged but chose not to admit so; and those whose level of participation was genuinely average. It is therefore not easy to interpret. Nevertheless, the large proportion (42/53, 79.2%) of respondents scoring themselves average or below suggests that most of the respondents did not play significant leadership roles in promoting the OH approach. This is remarkable considering that 41/53 of respondents were senior officers within their respective departments with 25/53 of them being at assistant director position and above. This further reinforces the earlier observations, under awareness section, that the OH approach in practice remains within narrow organizational spectra of the core implementers.

The Spearman's Rank Order Correlation was run to determine relationships between leadership, awareness and respondents' demographic characteristics. There were no significant correlations between respondents' levels of participation in leadership roles in implementation of the OH approach and age, length of service, seniority, academic qualifications and organizations of participants. However, there was a moderate and statistically significant positive correlation between respondents' levels of participation in leadership in the OH approach and their level of awareness ($R_s(51) = 0.54, p < 0.001$) (Table 4.20). This suggests that leaders that were more aware about the One Health

approach were also the ones more likely to have played leadership roles in its implementation and vice versa.

Table 4.20. Correlations between leadership involvement, awareness, sensitization and gender in the OH approach

| | | Level of leadership | Level of awareness | State of sensitization | Gender | |
|----------------|------------------------|-------------------------|--------------------|------------------------|--------|--------|
| Spearman's rho | Level of leadership | Correlation Coefficient | 1.000 | .530** | .523** | -.286* |
| | | Sig. (2-tailed) | . | .000 | .000 | .040 |
| | | N | 53 | 53 | 53 | 52 |
| | Level of awareness | Correlation Coefficient | .530** | 1.000 | .552** | .190 |
| | | Sig. (2-tailed) | .000 | . | .000 | .178 |
| | | N | 53 | 53 | 53 | 52 |
| | State of sensitization | Correlation Coefficient | .523** | .552** | 1.000 | .046 |
| | | Sig. (2-tailed) | .000 | .000 | . | .748 |
| | | N | 53 | 53 | 53 | 52 |
| | Gender | Correlation Coefficient | -.286* | .190 | .046 | 1.000 |
| | | Sig. (2-tailed) | .040 | .178 | .748 | . |
| | | N | 52 | 52 | 52 | 52 |

** . Correlation is significant at the 0.01 level (2-tailed).
 * . Correlation is significant at the 0.05 level (2-tailed).

Similarly, there was a moderate and statistically significant positive correlation between respondents' levels of participation in leadership in the OH approach and their state of sensitization ($R_s(51) = 0.52, p < 0.001$). This further shows that leaders that were sensitized on the OH approach were more likely to be the ones also playing leadership roles in the implementing the approach. These findings suggest that there is a positive

association between sensitization, level of awareness and leadership engagement in the implementation of the OH approach.

Further, there was a weak but statistically significant negative correlation between respondents' levels of participation in leadership roles in the implementation of the OH approach and gender (1=male, 2=female) ($R_s(51) = 0.29, p=0.023$). This suggests that female respondents were less likely to be involved in leadership in the One Health than their male counterparts. This could be a reflection of broader gender disparities in leadership roles among the target population.

4.5.2 Leadership Roles Played in Implementation of the OH Approach

The study sought to know what leadership roles respondents had played in implementation of the OH approach. This was meant to determine how leadership was practically influencing implementation of the approach. The analysis of respondents' answers regarding the roles they had played in the implementation of the OH is presented in Table 4.21.

Table 4.21 Roles of respondents in implementation of the OH approach

| | Frequency | Percent |
|---|------------------|----------------|
| Planning & implementing joint disease prevention and response | 15 | 44.1% |
| Training and sensitizing staff on OH | 10 | 29.4% |
| Setting up of ZDU | 7 | 20.6% |
| Advocating for OH | 2 | 5.9% |
| Total | 34 | 100.0% |

The question was answered by 34 respondents most likely those who felt confident about their levels of personal engagement in leadership capacities in implementation of the OH approach. Based on the analysis, 15/34 (44.1%) stated that they had played leadership roles in planning and implementing joint disease prevention and response activities. A further 10/34 (29.4%) indicated that they had undertaken training and (or) sensitization of personnel on the OH approach. Another leadership role reported was in setting up of the ZDU which was cited by 7/34 (13.2%) of the respondents while 2/34 (3.8%) specified that they had advocated for the OH approach.

The findings show that personnel in target organizations have played OH leadership roles mostly in the area of disease prevention and response and in training and sensitizing staff on the approach. Few have played been engaged in advocacy for the approach or setting up the institutional structure for the OH approach. This is possibly because the latter two functions are more strategic and mostly involve a higher hierarchy leadership whereas the functions are more technical and operational.

In order to get the flipside of the leadership roles played by the respondents in the OH approach, the study asked them to state how other leaders had influenced them in implementing the OH approach. This was intended to get a more holistic picture of leadership roles by examining not only the respondents' perceived roles but also examining their perceptions concerning the roles of other leaders. The results are presented in Table 4.22.

Table 4.22. Respondents' views on how other leaders influence them in the OH

| | Frequency | Percent |
|--|------------------|----------------|
| Minimally or none | 38 | 53.8 |
| Giving respondents opportunities for participation | 15 | 28.3 |
| Providing knowledge and awareness creation | 10 | 18.9 |
| Total | 53 | 100.0 |

approach

From the findings, 38/53 (53.8%) of the respondents indicated that other leaders had influenced them minimally in the implementation of One Health approach. A further 15/53 (28.3%) of the respondents indicated that other leaders had given them opportunities to participate in OH approach activities such as conferences and workshops. A proportion of 10/53 (18.9%) of the respondents indicated that other leaders in their organizations had contributed to their awareness and knowledge about the OH approach.

It is remarkable that 38/53 (53.8%) of the respondents stated that other leaders had influenced them minimally towards implementation of the OH approach. This however compares favourably with the large proportion (42/53) of respondents who scored themselves average or below with regard to their levels of individual engagement in leadership roles in implementation of the OH approach. These finding suggests that leadership engagement and participation in the OH approach is limited, which could be a significant constraint in implementation of the approach. The findings further reinforce the earlier observation that training and sensitization are important leadership roles in OH approach in including facilitating exposure of staff to the approach.

The leadership roles stated by the respondents were reiterated by the key informants. Asked to explain how as a leader he was involved in implementation of the OH approach, one of the key informants related with enthusiasm how he had been involved in the formation of the ZDU:

“How I am involved? In a very big way. I am a founder member- of the One Health unit –the Zoonotic Disease Unit which is at ...we put it on Kenyatta National Hospital grounds for the purpose of having a central place ...I don’t know whether any of you knows that that unit does not belong to any particular ministry. It does not belong to health nor does it belong to agriculture...it is a unit which was crafted to be in between to coordinate ...coordinate the activities of One Health in Kenya...”

The key informants underscored more roles that they considered important in implementation of the OH approach. These included: chairing of or participating in various oversight and coordination mechanisms of the OH approach; advocating for policy changes in support of OH approach; overseeing development of curricula and co-teaching programs on OH approach; developing OH work force through pre- and post-service training; motivating staff and students to embrace the OH approach; simplifying bureaucracy in the collaborating organizations and departments; putting in place structures for continuity of the OH approach; ensuring that all departments were included in the OH approach and coordinating OH activities of core ministries and partners. One key informant explained how cooperative leadership in OH approach was being exercised

through rotational chairing of the ZDTWG, an organ which brings together the core implementing ministries, agencies, academia, private sector, NGOs and development partners involved in the OH approach in Kenya. He stated:

“The ZDTWG is chaired on alternate basis...one does one year... after a year they switch over. Before we used to say it is co-chaired but we said responsibility has to land somewhere...and again the other aspect of leadership when a letter goes out they use a common letter head, signed by the two directors...the whole thing is again ownership. Who owns this thing ...so it does not look like one person owns it ...I mean ...you know the tag of war we normally have on the resources...”

Another key informant related being a member of the highest governing body of the One Health Central and East Africa (OHCEA) that brings together deans/directors from schools of health and those of veterinary sciences to oversee implementation of the OH approach in institutions of higher learning in the two regions.

“As Director of School of Public Health I sit in the summit of OHCEA which is the highest level of OHCEA leadership structure. OHCEA has a board which sits to make recommendations that are ratified at the summit... This is at regional level. At country level we coordinate the activities of OHCEA with the assistance of the focal persons. I have been with OHCEA since its beginning around 2010.”

4.5.3 Influence of Leadership on Implementation of OH Approach

In order to understand how various leadership roles influenced implementation of the OH approach the study asked respondents to score a five-point Likert scale where: 1: strongly disagree; 2: disagree; 3: neither agree nor disagree; 4: agree; and 5: strongly agree. The responses were analyzed using percentages. The results are summarized in Table 4.23.

From the findings, over 70% of the respondents admitted that leaders in their organizations had embraced the OH approach: 51% agreed and 21.6% strongly agreed whereas 19.6% were neutral and 7.8% refuted (3.9% disagreed and 3.9% strongly disagreed) the statement. Over 86% of the respondents acknowledged that top government leaders were not well sensitized about the OH approach: 45.1% strongly agreed and 41.2% agreed while 5.9% were neutral and 7.9% negated (5.9% disagreed and 2% strongly disagreed) the assertion.

On leadership and sensitization of personnel on the OH approach, 36.2% of the respondents were affirmative (28.8% agreed and 3.8% strongly agreed), 44% were neutral, and 23% were negative (9.6% disagreed and 13.5% strongly disagreed) of the statement that leaders in their organizations were actively engaged in sensitizing personnel about the OH approach. On leadership and influence on personnel, 36.5% of the respondents affirmed (34.6% agreed and 1.9% strongly agreed), 38.5% were neutral, and 22% refuted (13.5% disagreed and 11.5% strongly disagreed) that leaders in their organizations had influenced personnel to adopt the OH approach.

Table 4.23 Summary Likert scores on leadership and implementation of the OH approach

| Aspects of leadership and implementation of the OH approach | 5 (%) | 4 (%) | 3 (%) | 2 (%) | 1 (%) |
|--|------------|-------------|-------------|-------------|-------------|
| Leaders in my organization have embraced the OH approach | 21.6 | 51.0 | 19.6 | 3.9 | 3.9 |
| Leaders in my organization are actively engaged in sensitizing personnel about the OH approach | 3.8 | 28.8 | 44.2 | 9.6 | 13.5 |
| Leaders in my organization have influenced personnel to adopt the OH approach | 1.9 | 34.6 | 38.5 | 13.5 | 11.5 |
| Leaders in my organization advocate for allocation of resources for implementation of the OH approach. | 5.9 | 35.3 | 35.3 | 13.7 | 9.8 |
| Leaders in my organization help to remove bureaucratic barriers to implementation of the OH approach | 3.9 | 23.5 | 52.9 | 9.8 | 9.8 |
| Leaders in my organization advise and guide personnel on practical implementation of the OH approach | 3.8 | 28.8 | 42.3 | 17.3 | 7.7 |
| Leaders in my organization promote team spirit in implementation of the OH approach | 11.8 | 27.5 | 41.2 | 9.8 | 9.8 |
| Top government leaders are still not well sensitized about the OH approach | 45.1 | 41.2 | 5.9 | 5.9 | 2.0 |
| Cell average on practical leadership roles* | 5.2 | 29.8 | 42.4 | 12.3 | 10.3 |

*The averages exclude the first and last statements that do not concern practical roles.

Regarding leadership and advocacy for the OH approach, 41.2% admitted (35.3% agreed and 5.9% strongly agreed), 35.3% were neutral and 23% negated (13.9% disagreed and 9.8% strongly disagreed) that leaders in their organizations advocated for allocation of resources for implementation of the OH approach. On leadership and simplification of bureaucracy, 27.4% of the respondents acknowledged (23.5% agreed and 3.9% strongly agreed), 52.9% were neutral and 9.6% rebutted (9.8% disagreed and 9.8% strongly disagreed) the statement that leaders in their organizations helped to remove bureaucratic barriers to implementation of the OH approach.

Concerning leadership and guidance on the OH approach, 32.6% of the respondents admitted (28.8% agreed and 3.8% strongly agreed), 42.3% were neutral and 25 rejected (17.3% disagreed and 7.7% strongly disagreed) the statement that leaders in their organizations advised and guided personnel on practical implementation of the OH approach. Regarding leadership and creation of team spirit in the OH approach, 32.6% of the respondents affirmed (28.8 agreed and 3.8 strongly agreed), 42.3% were neutral, and 25% refuted (17.3% disagree and 7.7% strongly disagreed) that leaders in their organizations promoted team spirit in the implementation of the OH approach.

These findings show that most respondents believed that leaders in their organizations had embraced the OH approach. However, fewer respondents could vouch for their leaders on practical aspects of implementation of the approach such as sensitization and influencing staff, advocating for resources for the approach, simplifying bureaucracy, giving technical guidance and promoting team spirit. This is demonstrated by the aggregate cell average of about 35% of those respondents who affirmed (29.8% agree and 5.2% strongly agree) statements on practical leadership roles, 42% who were neutral and about 23% who refuted (12.8% disagree and 10.3 strongly disagree) the statements. This paradox suggests that, beyond embracing the OH approach, leaders were not practically implementing it to a great extent. This further suggests that there could be other inhibitors to practical implementation of the approach such as the lack of sensitization of top government leaders on the OH approach. These findings reinforce the previous observation that leadership engagement in implementation of the OH approach is generally weak and possibly limited to a few personnel.

In order to gain insight into what might be the most influential leadership roles in the implementation of the OH approach, respondents were asked to state their views on the question. The results are presented in Table 4.24.

Table 4.24 Respondents’ views of influential leadership functions in OH approach

| Function | Frequency | Percent |
|--|------------------|----------------|
| Developing/empowering and motivating staff | 20 | 43.5 |
| Planning, organizing and coordinating | 15 | 32.6 |
| Securing and managing resources for OH | 7 | 15.2 |
| Influencing policy formulation on OH | 4 | 8.7 |
| Total | 46 | 100.0 |

The question was answered by 46 respondents. The analysis shows that 20/46 (43.5%) of them expected successful leaders in implementation of the One Health approach to develop, empower, and motivate their staff. They variously explained that this could be achieved through training, mentorship, provision of opportunities, and rewarding success in OH activities. A further 15/46 (32.6%) prioritized planning, organizing and coordinating One Health programs as the most influential leadership. Securing and managing resources was seen by 7/53 (15.2%) of the respondents as the most important leadership role for implementation of the OH approach while 4/46 (8.7%) felt that influencing policy was the main role of leaders in the OH approach.

The influential leadership roles in implementation of the OH approach were supported by the key informants. Most of them asserted that among the most influential leadership

roles was first and foremost to gain ownership of the OH approach, develop a clear vision about it, and then rally others behind the vision. One key informant said:

“You need to be convinced as a leader first before you move on and once you are convinced...you then start pulling others towards the vision”

Most key informants further pointed out that leaders charged with implementation of the OH approach had to play the following roles: create a working environment for personnel to embrace the OH approach; develop appropriate policies and institutional structures for OH approach; remove bureaucratic barriers between organizations or departments; create awareness about and expand participation in the OH approach; ensure good coordination through clear definition and sharing of roles; provide technical oversight, guidance and advice on all matters regarding the OH approach; sit in committees and boards on the OH approach; interact with top government leaders; issue authoritative statements on OH issues; build trust, create enthusiasm, promote ownership; manage collaborative leadership; mobilize resources for implementation of OH; advocate for the OH approach. One key informant, making reference to leadership roles that were played during the establishment of the ZDU, stated:

“...we did it in such a way that nobody felt that he owned the unit (more than the other person)... we saw that (such a feeling) would kill it...You know our culture...of in-fighting. The leadership had to look at how to do it in such a way that we don't kill the spirit of collaboration...because you can easily start and then it dies off because some people feel like they are not into it.”

The findings on influential leadership roles show that personnel are aware of the roles that leaders in their organizations are expected play to enhance implementation of the OH approach even though these are not necessarily being practiced. Inspirational leadership roles such as developing and motivating staff are important as are outcome oriented roles such as planning and resource mobilization.

4.5.6. Improvement of Leadership/ Organizational Structure for the OH Approach

To explore further the barriers to leadership engagement in the OH approach and how they could be addressed, the study asked respondents to state how the current leadership or organizational structure for the OH approach could be strengthened. The results of the analysis are presented in Table 4.25.

The question was answered by 42 respondents. According to 11/42 (26.2%) of the respondents expanding stakeholder participation in the OH approach was one of the ways of improving current leadership and/or organizational structure for implementation of the OH. The respondents variously explained that such stakeholder expansion should take into account the following: more technical representation and inclusivity in the ZDTWG including greater involvement of the environment and ecosystem sector; appointment of a parliamentary OH committee; and development of clear terms of the OH technical working group that spell out the roles of each player .

Further, 8/42 (19%) of the respondents recommended strengthening the capacity for implementation of the OH approach including: training of personnel on OH approach

from national to county levels; establishing a robust central data handling and information sharing platform for the involved sectors; up-scaling biosafety levels and accrediting institutional laboratories of involved sectors; increasing human resources capacities of the ZDU; and establishing inter-operative surveillance systems for animal and human health.

Table 4.25. Suggestions for improvement of current leadership/ organization structure for the OH approach

| | Frequency | Percent |
|--|------------------|----------------|
| Widen stakeholder participation in OH approach | 11 | 26.2 |
| Strengthen capacity for OH implementation | 8 | 19.0 |
| Transform ZDU/OH office | 7 | 16.7 |
| Devolve OH to counties | 6 | 14.3 |
| Improve communication structures | 6 | 14.3 |
| Allocate more funds to OH | 4 | 9.5 |
| Total | 42 | 100.0 |

Additionally, 7/42 (16.7%) of the respondents proposed various transformative changes to the ZDU and ZTWG including: empowering the two institutions through legislation; giving ZDU autonomy; transforming ZDU to a parastatal body; elevating ZDU to departmental level within participating institutions; establishing a OH directorate; and raising ZDU/ZTWG to higher stature such as that of the HIV/AIDS control Board.

Furthermore, 6/42 (14.3%) of the respondents suggested that OH approach should be devolved to the counties and sub-counties in order to enhance implementation of OH activities on the ground. Some proposed the creation of County OH committees or

coordination units and scaling up advocacy with county leadership to seek their support for implementation the OH approach at county levels.

According to 6/42 (14.3%) of the respondents that communication structures among OH stakeholders should be improved taking into account the following: mechanisms for regular feedback on progress in implementation of the OH approach; open communication channels; better communication among ministries; and joint planning and implementation of programs among ministries.

Finally, 4/42 (7.5%) suggested that more government funds should be allocated towards implementation of the OH approach which could some proposed could require legislative and policy interventions.

The preceding findings show that there are several barriers that might hinder leaders from practically engaging in implementation of the OH approach. These barriers include: narrow stakeholders participation in the approach; weak capacities for implementation of the approach; inadequate institutional structure of ZDU and ZTWG; challenges associated with devolution of implementation to counties; weak communication structures for the OH approach; inadequate allocation of governments resources to the approach.

4.6 Technical Capacities and Implementation of OH Approach

In order to understand the influence of technical capacities on implementation of the OH approach, the study asked respondents to state the following: the extent to which technical capacities of their organizations contributed to implementation of the OH approach; the ways in which the technical capacities influenced implementation of the OH approach; some of the technical capacities that were shared most in implementing the OH approach; their scores on statements about technical capacity and the OH approach on Likert scale; and the aspects of technical capacity that needed to be addressed in order to improve implementation of the OH approach. This section presents the analysis of these aspects and the interpretation of the findings.

4.6.1 Extent to which Technical Capacities Contribute to the OH Approach

The study asked respondents to score the extent to which technical capacities in their organizations contributed to the implementation of the One Health approach. The scoring scale comprised: 1: very low; 2: low; 3: average; 4: high; and 5: very high. The results of the analysis are summarized in Table 4.26. According to 24/53 (45.3 %) of the respondents, technical capacities contributed to implementation of the OH approach to an average extent. Further, 12/53 (24.6 %) of the respondents acknowledged that technical capacities contributed to a high extent in implementation of the OH approach and 1/53 (1.9%) scored the contribution very high. On the contrary, 13/53 (24.6%) felt that the contribution of technical capacities to implementation of the OH approach was insignificant, 10/53 (18.9%) scoring it low and 3/53 (5.7%) very low.

The large proportion that scored average the contribution of technical capacities to implementation of the OH approach could reflect uncertainty about the issue among the respondents or differing understanding of the meaning of technical capacity. The equivocal score (13/53) between high and low contribution of technical capacities to implementation of the OH approach further reinforcing the possibility of uncertainty among respondents on the issue.

Table 4.26. Level of influence of technical capacities on the OH approach

| | Frequency | Percent |
|--------------|------------------|----------------|
| Very low | 3 | 5.7 |
| Low | 10 | 18.9 |
| Average | 24 | 45.3 |
| High | 12 | 22.6 |
| Very high | 1 | 1.9 |
| Blank | 3 | 5.7 |
| Total | 53 | 100.0 |

4.6.2 Technical Resources that are Commonly Shared in the OH Approach

Respondents were further asked to state which technical resources were shared most by their organizations in implementation of the OH approach. The results of the analysis are presented in Table 4.27.

The question was answered by 38 respondents. According to 14/38 (36.8%) of the respondents, technical skills were among the most commonly shared technical resource in

their organizations. They variously explained the technical skills to include: specialized skills and human resources in activities such as joint disease outbreak investigations and response; skills in publication of scientific papers and peer review of joint research findings; joint trainings on specific subjects pertaining to OH approach through conferences, workshops, field-days, professional association meeting and other forums for sharing of professional experiences.

Table 4.27 Respondents views on the most commonly shared technical resources for OH approach

| | Frequency | Percent |
|---------------------------------|------------------|----------------|
| Technical skills | 14 | 36.8 |
| Laboratory facilities | 11 | 28.9 |
| Data and information/ knowledge | 7 | 18.4 |
| Logistics | 6 | 15.8 |
| Total | 38 | 100.0 |

Further, 11/38 (28.9%) of the respondents stated that laboratory facilities were among the most shared technical resource in implementation of the OH approach. These included laboratory diagnostic tools, sampling gear, protective clothing, laboratory services, cold-chains, diagnostic findings and laboratory reports.

Information, knowledge and data were cited by 7/38 (18.4%) of respondents as among the most frequently shared technical resources. These according to their various explanations included: disease prevalence data; surveillance reports; information sharing

among existing laboratory networks; real-time discussions during collaborative research; wildlife census data; wildlife species identification data; simulation exercises to test disease preparedness and response plans; communication channels that reach farmers and community members with appropriate messages; and research tools such as questionnaires

Additionally, 6/38 (7.9%) of the respondents mentioned logistics among the resources that were shared for the OH approach. The logistic capacities mentioned included office space, vehicles and earthmoving equipment for disposal of carcasses such as in cases of wildlife disease outbreaks.

These findings show that the technical resources shared in the implementation of the OH approach mostly include technical skills, laboratory facilities, data, information, knowledge and the associated logistics.

4.6.3 Influence of Technical Capacities on Implementation of the OH Approach

To gain deeper insight into the influence of technical capacities on implementation of the OH approach, the researcher asked respondents to score statements on a Likert scale with five points, namely: 1: strongly disagree; 2: disagree; 3: neither agree nor disagree; 4: agree; and 5: strongly agree. The scale tested five areas of technical capacity, namely; laboratory facilities, research platforms, information and knowledge, skilled human resources, and logistics and vehicles. The results of the analysis are presented in Table 4.28.

The analysis shows that sharing of laboratory facilities, joint research platforms, information and knowledge, skilled human resources, and logistics and vehicles were all viewed by most respondents to have contributed positively to the implementation of the OH approach. This is demonstrated by a cell average of 68.2% of those who affirmed (39.3% agree and 28.9% strongly agree) compared to that of 19.1% of those who were neutral and 12.7% of those who negated (8.3% disagree and 4.4% strongly disagree) the statements. Sharing information and knowledge was the technical resource rated most highly with 84% of respondents affirming (50% agree and 34% strongly agree), 12% remaining neutral and only 4% refuting that it had contributed positively to the implementation of OH approach.

Table 4.28 Respondents’ view on influence of technical capacities on implementation of the OH approach

| Technical capacity and implementation of the OH approach | 5 (%) | 4 (%) | 3 (%) | 2 (%) | 1 (%) |
|---|--------------|--------------|--------------|--------------|--------------|
| a) Sharing of laboratory facilities has enhanced implementation of the OH approach in Kenya | 44.2 | 17.3 | 17.3 | 13.5 | 7.7 |
| b) Joint research platforms have contributed positively to implementation of the OH approach in Kenya | 22.4 | 49 | 16.3 | 8.2 | 4.1 |
| c) Sharing of information and knowledge has enhanced implementation of the OH approach in Kenya | 34.0 | 50.0 | 12.0 | 4.0 | 0.0 |
| d) Sharing of skilled human resources has contributed positively to implementation of the OH approach in Kenya | 24.0 | 42.0 | 22.0 | 8.0 | 4.0 |
| e) Sharing of logistics and vehicles for joint field projects has enhanced implementation of the OH approach in Kenya | 20.0 | 38.0 | 28.0 | 8.0 | 6.0 |
| Cell average | 28.9 | 39.3 | 19.1 | 8.3 | 4.4 |

A Spearman's Rank Order correlation was run to determine the relationships between respondents' views on influence of various technical capacities on implementation of the OH approach and other parameters under study, namely: respondents' demographic characteristics (age, gender, organization, length of service, seniority and academic qualifications); their levels of awareness; their levels of participation in leadership capacities; and their scores on the level to which technical capacities had contributed to implementation of the One Health approach. Respondents' views on the influence of various technical capacities on implementation of the OH approach did not correlate significantly to their demographic characteristics and their levels of awareness but it correlated significantly with other aspects illustrated in Table 4.29 and described below.

There was a weak but statistically significant positive correlation between respondents' scores of the levels to which they had played leadership roles in implementation of the OH approach and their scores of the contribution of technical capacities to implementation of the approach ($R_s(51) = 0.28, p = 0.043$). This suggests that respondents who had played leadership roles in implementing the OH approach to a larger extent tended to appreciate better the contribution of technical capacities to implementation of the approach. Nevertheless, this association was quite weak.

Table 4.29. Correlations between respondents' scores of technical capacities and level s of leadership in OH approach

| | | | Contribution of technical capacities | Lab facilities | Knowledge / information | Human resource | Logistics | Research platforms | Leadership level |
|------------------|--------------------------------------|-------------------------|--------------------------------------|----------------|-------------------------|----------------|-----------|--------------------|------------------|
| Spearman's rho | Contribution of technical capacities | Correlation Coefficient | 1.000 | .404** | .607** | .492** | .351** | .380** | .279* |
| | | Sig. (2-tailed) | . | .003 | .000 | .000 | .010 | .005 | .043 |
| | | N | 53 | 53 | 53 | 53 | 53 | 53 | 53 |
| | Lab facilities | Correlation Coefficient | .404** | 1.000 | .654** | .632** | .707** | .766** | .217 |
| | | Sig. (2-tailed) | .003 | . | .000 | .000 | .000 | .000 | .119 |
| | | N | 53 | 53 | 53 | 53 | 53 | 53 | 53 |
| | Knowledge/ information | Correlation Coefficient | .607** | .654** | 1.000 | .686** | .486** | .694** | .130 |
| | | Sig. (2-tailed) | .000 | .000 | . | .000 | .000 | .000 | .354 |
| | | N | 53 | 53 | 53 | 53 | 53 | 53 | 53 |
| | Human resources | Correlation Coefficient | .492** | .632** | .686** | 1.000 | .777** | .587** | .113 |
| | | Sig. (2-tailed) | .000 | .000 | .000 | . | .000 | .000 | .421 |
| | | N | 53 | 53 | 53 | 53 | 53 | 53 | 53 |
| | Logistics | Correlation Coefficient | .351** | .707** | .486** | .777** | 1.000 | .683** | -.023 |
| | | Sig. (2-tailed) | .010 | .000 | .000 | .000 | . | .000 | .868 |
| | | N | 53 | 53 | 53 | 53 | 53 | 53 | 53 |
| | Research platforms | Correlation Coefficient | .380** | .766** | .694** | .587** | .683** | 1.000 | -.036 |
| | | Sig. (2-tailed) | .005 | .000 | .000 | .000 | .000 | . | .800 |
| | | N | 53 | 53 | 53 | 53 | 53 | 53 | 53 |
| Leadership level | Correlation Coefficient | .279* | .217 | .130 | .113 | -.023 | -.036 | 1.000 | |
| | Sig. (2-tailed) | .043 | .119 | .354 | .421 | .868 | .800 | . | |
| | N | 53 | 53 | 53 | 53 | 53 | 53 | 53 | |

** . Correlation is significant at the 0.01 level (2-tailed). * Correlation is significant at 0.05 level (2-tailed)

There was a moderate and statistically significant positive correlation between respondents' scores of the influence of sharing information and knowledge on implementation of the OH approach and their scores on the level to which technical capacities had contributed to the approach ($R_s(51) = 0.61, p < 0.001$). This association shows that respondents who scored the contribution of technical capacities to implementation of the OH approach high also tended to score the influence of sharing information and knowledge on implementation of the approach high. There were weak but statistically significant positive correlations between respondents' scores of influence of the other four areas of technical capacity to implementation of the OH approach and their scores of the level to which technical capacities contributed to the approach. These observations suggest that sharing information and knowledge is the area of technical capacity that is regarded by most personnel to be a major contributor to the implementation of OH approach.

Further, there was a strong and statistically significant positive correlation between respondents' scores of the influence of laboratories and their scores on the influence of research platforms on the implementation of the OH approach ($R_s(51) = 0.77, p < 0.001$). This suggests that respondents who viewed research platforms as important in the implementation of the OH approach also tended to see laboratories as important. This might be expected because most of the research undertaken by the organizations studied is biomedical relying on research and diagnostic laboratories. Similarly, there was a strong and statistically significant positive correlation between respondents' scores on the influence of laboratories and their scores on the influence of logistics on the

implementation of the OH approach ($(R_s(51) = 0.71, p < 0.001)$). This shows respondents who viewed laboratories as important also tended to view logistics and vehicles as important. This is also logical since laboratories are dependent on logistic support to obtain samples for analysis.

The analysis further showed a strong and statistically significant positive correlation between respondents' scores on the influence of information and knowledge and their scores on the influence of research platforms to implementation of the OH approach ($(R_s(51) = 0.69, p < 0.001)$). Since the ultimate product of research is knowledge, it is conceivable that respondents that view research as an important aspect should also view sharing of information/ knowledge as important to implementation of the OH approach. Likewise, there was a strong and statistically significant positive correlation between respondents' scores of the influence of information/ knowledge and their scores on the influence of human resources to implementation of the OH approach ($(R_s(51) = 0.69, p < 0.001)$). Similarly, this association plausible since knowledge/ information for implementation of the OH approach is disseminated by human beings.

The findings further revealed a strong and statistically significant positive correlation between respondents' scores of the influence of logistics and vehicles and their scores of the influence of human resources to implementation of the OH approach ($(R_s(51) = 0.78, p < 0.001)$). This association would also be expected since logistics and vehicles are operated by human beings and those who view one as important could also tend to see the other as important as well. There were also statistically significant positive correlations

between respondents' scores on the influence of the remaining areas of technical capacity on implementation of the OH approach but these were moderate (Table 4.29).

These findings show that further affirm that knowledge and information sharing, laboratory capacities, skilled human resources, joint research platforms and associated logistics are important aspects of technical capacity in the implementation of the OH approach.

To gain insight into the ways in which technical capacities of the organizations under study had influenced implementation of the OH approach, the study gave respondents an opportunity to explain through an open ended question. The results are summarized in Table 4.30.

Table 4.30 Respondents' suggestions on how technical capacities have influenced the OH approach

| | Frequency | Percent |
|---|------------------|----------------|
| Enhanced joint trainings for personnel | 13 | 32.5 |
| Improved joint disease surveillance and control | 11 | 27.5 |
| Enhanced strategic research | 6 | 15.0 |
| Enhanced common strategies and plans | 6 | 15.0 |
| Improved logistics | 4 | 10.0 |
| Total | 40 | 100.0 |

Forty respondents addressed the question. According to 13/40 (32.5%) of them, existence of technical resources had contributed to enhanced joint training of personnel in the organizations studied. Further, 11/40 (27.5%) of the respondents specified that technical

capacities had contributed to improved joint disease surveillance and control. Additionally, 6/40 (15%) of them said that technical capacities had contributed to enhanced strategic research on zoonotic diseases and other OH issues. Another 6/40 (15%) pointed out that technical capacities had contributed to development of common strategies to address priority disease issues. The remaining 4/40 (10%) explained that existence of technical capacities had led to improved logistics such through sharing of vehicles.

These findings were corroborated by the key informants. Most of them cited knowledge, data, skilled personnel, laboratory diagnostics, personal protective equipment, field equipment such as cooling facilities and vehicles as the resources that had been shared most to enhance implementation of the OH approach. One key informant gave an example of how knowledge, vehicles and laboratory strengths were shared in a USAID funded collaborative OH project in 2009-2011. He explained:

“KWS did not have (adequate) diagnostic laboratories...but these were shared and a central repository of biological samples was created at the secretariat where it could be accessed from by all organizations. We discussed scientific publication of results ...We shared vehicles...DVS could share vehicles with ICIPE based on project funding.”

Most key informants acknowledged that pooling of technical resources had made it possible for organizations to achieve more than they could have achieved separately. One key informant explained:

“I think one of the ways sharing resources influences implementation of the OH approach is by bringing a bigger pool of technical expertise, materials and equipment...When you have a bigger pool you are able to do more.”

One informant however observed that absence or weak technical capacities could also negatively influence the OH approach. He explained:

“...laboratories exist but they have a few challenges: the National Public Health Laboratories, and in particular the Zoonoses and Emerging Infections Lab is not adequately equipped and staffed...we are dependent on research labs such as KEMRI and we need to wean ourselves from these...”

The key informant also explained that knowledge of the kind of technical resources different organizations had that could potentially be shared was sometimes lacking. He noted:

“...we have not yet fully identified the technical capacity in the Environment sector to support the OH approach...this is what we should be working on”

4.6.5 Improving the Contribution of Technical Capacities to the OH Approach

To understand how the contribution of technical capacities to the OH approach could be improved, the study asked respondents to state which aspects of technical capacity they felt needed most attention to enhance the OH approach. The results of the analysis are presented in Table 4.31.

The question was answered by 48 respondents. Among them, 14/48 (29.2%) proposed that coordination and collaboration were among the aspects that needed to be improved most in order for existing technical capacities to be shared in a better way in implementation of the OH approach. Respondents suggested various ways of achieving this, including: creating more joint research initiatives; establishing an effective framework for collaboration; creating modalities for sharing technical resources; mapping out stakeholders and forging a common plan; and enhancing involvement of the Environment sector in OH activities.

Table 4.31 Respondents’ suggestions on aspects of technical capacity that need to be improved to enhance OH approach.

| | Frequency | Percent |
|--------------------------------------|------------------|----------------|
| Coordination and collaboration | 14 | 29.2 |
| Training | 12 | 25.0 |
| Working tools | 8 | 16.7 |
| Communication and awareness creation | 8 | 16.7 |
| Advocacy and resource mobilization | 6 | 12.5 |
| Total | 48 | 100.0 |

According to 12/48 (25%) of the respondents, training of staff was among the priority areas of intervention in order to improve implementation of the OH approach. In this aspect, respondents stated that staff from national to grassroots levels should be trained on aspects relevant to their jobs such as: sample and data collection and conveyance; data analysis and interpretation; recent diagnostic techniques; leadership and management; and the OH approach. Respondents also stated that authorities concerned with the OH

approach should engage trained personnel from other relevant specializations such Veterinary Public Health more fully in implementation of the OH approach.

Further, 8/48 (16.7%) of the respondents specified that technical working tools should be enhanced including modern laboratory equipment and ICT facilities. Another 8/48 (16.7%) proposed that communication and awareness was a priority area that should be enhanced. They proposed various ways of achieving this including: establishment of joint information and data sharing platforms; sensitization of policy level leaders and grassroots communities on OH approach; development of joint communication strategies; and establishing a clear command structure in communication of OH matters.

Finally 6/48 (12.5%) argued that allocation of financial resources to build technical capacities was the aspect that required most attention. They explained in various ways that this would require resource mobilization efforts and budget advocacy.

4.7 Organizational Policies and Implementation of OH Approach

The study sought to establish how existing policies contributed to implementation of the OH approach by the ZDU and core implementing partners. To achieve this, the researcher sought respondents' views on several aspects, namely: why policies were important for implementation of the OH approach; the suitability of existing organizational policies to implementation of the approach; the influence of policies on implementation of the OH approach; and how the policy situation for implementation of OH approach could be improved.

4.7.1 Importance of Policies in the Implementation of the OH Approach

The study endeavoured to understand respondents' appreciation of the importance of policies in implementation of the OH approach. To achieve this, the respondents were asked to suggest why policies were important for the implementation of the OH approach. The results of the analysis are presented in Table 4.32.

Table 4.32. Views on importance of Policies in the OH Approach

| | Frequency | Percent |
|--|------------------|----------------|
| Provide guidance and direction | 28 | 58.3 |
| Are the basis for institutionalization | 16 | 33.3 |
| Influence allocation of resources | 4 | 8.3 |
| Total | 48 | 100.0 |

Forty eight respondents answered the question. According to 28/48 (58.3%) of the respondents, policies were necessary to provide guidance and direction to government and implementing institutions on all aspects of the OH approach. Further, 16/48 (33.3%) of the respondents specified that policies were needed to form a solid basis for institutionalizing the OH approach and making it officially recognized as a normal part of organizations. Additionally, 4/48 (8.3%) asserted that policies influenced allocation of government budgets and other resources and were therefore necessary for mobilizing such resources to implement the OH approach. These findings show that most respondents appreciated the importance of policies to implementation of OH approach.

4.7.2. Suitability of Existing Policies for Implementation of the OH Approach

In order to get insight into how favourable existing policies were for implementation of the OH approach, the study asked respondents to score the suitability of the policies on a scale of one to five, where: 1: very low; 2: low; 3: average; 4:high; and 5: very high. The results are presented in Table 4.33.

Table 4.33 Respondents' rating of suitability of existing policies for the OH approach

| | Frequency | Percent |
|------------------|-----------|---------|
| Very low | 6 | 11.3 |
| Low | 11 | 20.8 |
| Average | 29 | 54.7 |
| High | 7 | 13.2 |
| Very high | 0 | 0 |
| Total | 53 | 100.0 |

From the analysis, 29/53 (54.7%) of the respondents indicated that existing policies were averagely favourable for implementation of the OH approach. Further, 11/53 (20.8%) indicated that the policies were favourable to a low extent and 6/53 (11.3%) opined that they were favourable to a very low extent for the implementation of the approach. According to 7/53 (13.2 %) of the respondents, however, the existing policies were favourable to a high extent for the implementation of the approach but none of the respondents felt that they were favourable to a very high extent.

The large proportion of respondents giving an average score to suitability of existing policies for implementation of the OH approach may include some respondents that were uncertain about the issue. However, the observation that a total of 46/53 (86.8%) scored the suitability of existing policies average or below for the implementation of the OH approach indicates that there could be gaps in policies that may need to be addressed to improve the policy environment for implementation of the OH approach.

4.7.3 Improving the Policy Situation for Implementation of the OH Approach

In order to gain understanding of the issues that may need to be addressed to enhance the policy environment for implementation of the OH approach, the study asked respondents to suggest actions that could be taken to make the policy situation more favourable for the approach . The results of the analysis are presented in Table 4.34.

Table 4.34 Respondents views on how to improve policy situation for sustainable implementation of the OH approach

| | Frequency | Percent |
|--|------------------|----------------|
| Review policies to incorporate the OH approach | 20 | 45.5 |
| Enhance public sensitization and participation | 11 | 25 |
| Enhance advocacy for OH approach | 8 | 18.2 |
| Develop a stand-alone policy for OH approach | 5 | 11.4 |
| Total | 44 | 100.0 |

The question was answered by 44 of the respondents. From the analysis, 20/44 (45.5%) of the respondents suggested that existing policies should be reviewed to reflect the OH approach. Further, 11/44 (25%) suggested that public sensitization and participation in

the OH approach should be scaled up. Additionally, 8/44(18.2%) proposed that advocacy on the OH approach was requisite to improving the policy situation for implementation of the approach. According to 5/44 (11.4%) of the respondents, a stand-alone OH policy should be developed to guide implementation of the approach. These findings suggest that review of key policies to reflect the OH approach, scaling up public sensitization and participation in the OH approach, policy advocacy and a stand alone OH policy are important interventions that could improve the policy situation for implementation of the OH approach by the organizations studied.

To explore further the interventions needed to improve the policy environment for implementation of the OH approach, the study asked respondents to score statements on a five-point Likert whereby: 1: strongly disagree; 2: disagree; 3: agree; 4: neither agree nor disagree; and 5: strongly agree. The results of the analysis are presented in Table 4.35.

Table 4.35 Respondents scores of needed policy interventions for the OH approach

| Policies and implementation of the OH approach | 5 | 4 | 3 | 2 | 1 |
|---|-------------|-------------|-------------|------------|------------|
| a) Existing policies should be reviewed to reflect the OH approach | 68.6 | 29.4 | 2.0 | 0 | 0 |
| b) A stand-alone policy for the OH approach in Kenya should be developed | 50.0 | 19.2 | 17.3 | 3.8 | 9.6 |
| c) The OH Office in Kenya should be housed higher than the two parent ministries, possibly in the Office of the president | 32.7 | 21.2 | 32.7 | 7.7 | 5.8 |
| d) The OH approach should receive direct allocation of funds by the government | 44.2 | 17.3 | 17.3 | 13.5 | 7.7 |
| Cell average | 48.9 | 21.8 | 17.3 | 6.2 | 5.8 |

From the analysis, 98% of the respondents acknowledged that existing policies should be reviewed to reflect the OH approach: 68.6% strongly agreed and 29.4% agreed. Only 2% remained neutral about the statement and none refuted it. Further, 69.2% of the respondents affirmed that a stand-alone OH policy should be developed to guide implementation of the approach: 50% strongly agreed and 21.2% agreed. However, 17.3% were neutral to the statement and 13.5% refuted it (3.8% disagreed and 9.6% strongly disagreed). Moreover, 54% of the respondents admitted that the OH office in Kenya should be elevated to a higher position than the two parent ministries: 32.7% strongly agreed and 21.2% agreed with the statement whereas 32.7% were neutral and 13.5% negated (7.7% disagree and 5.8% strongly disagree) the statement. Finally, 61.5% of respondents acknowledged that the OH office should receive direct allocation of funds by the government: 44.2% strongly agreed and 17.3% agreed with the statement while 17.3% were neutral about the statement and 21.2% refuted it (13.5% disagree and 7.7% strongly disagree).

The almost unanimous agreement of respondents to the proposition that policies need to be reviewed to reflect the OH approach suggests that respondents believed that this was an important intervention for sustainable implementation of the OH approach. The significant proportion agreeing to the suggestion that a stand-alone OH policy was needed reinforces the observation that there are policy gaps that need to be addressed in order to achieve sustainable implementation of the OH approach.

A Spearman's Rank Order correlation was run to determine the relationships between respondents' scores of suitability of organizational policies for implementation of the OH approach, their demographic characteristics (age, gender, organization, length of service, seniority and academic qualifications); their levels of awareness; their state of sensitization; their levels of participation in leadership capacities; and their scores of needed policy interventions to enhance implementation of the OH approach.

Respondents' scores of suitability of organizational policies for implementation of the OH approach did not correlate significantly with their demographic characteristics, their levels of awareness and state of sensitization. However, there was a weak but statistically significant positive correlation between respondents' scores of suitability of organizational policies for implementation of the OH approach and their level of participation in leadership capacities in the approach ($R_s(51) = 0.28, p = 0.046$) (Table 4.36). This association suggests that respondents who had participated more in leadership capacities in implementing the OH approach tended to view policies for implementation of the approach more favourably. Further, there was a weak and marginally significant negative correlation between respondents' levels of participation in leadership capacities in implementing the OH approach and their likert score of the proposition that existing policies should be reviewed ($R_s(51) = -0.26, p = 0.055$). This further confirms that respondents who had engaged more in leadership capacities in OH approach tended to view policies more favourably indicating that they were possibly more aware of some enabling factors in the policy environment for implementation of the OH approach. However, it should be noted that these were weak associations..

Table 4.36 Correlations between respondents scores of suitability of policies and their scores of leadership engagement and proposed policy interventions.

| | | | Review policies | Develop stand-alone policy | House OH office higher | Allocate budget to OH | Suitability of OH policies | Leadership engagement |
|--|----------------------------|---------------------|-----------------|----------------------------|------------------------|-----------------------|----------------------------|-----------------------|
| Pearson's rho | Review policies | Pearson Correlation | 1 | .678** | .691** | .697** | .186 | -.265 |
| | | Sig. (2-tailed) | | .000 | .000 | .000 | .183 | .055 |
| | | N | 53 | 53 | 53 | 53 | 53 | 53 |
| | Develop stand-alone policy | Pearson Correlation | .678** | 1 | .992** | .993** | .060 | -.164 |
| | | Sig. (2-tailed) | .000 | | .000 | .000 | .668 | .241 |
| | | N | 53 | 53 | 53 | 53 | 53 | 53 |
| | House OH office higher | Pearson Correlation | .691** | .992** | 1 | .994** | .055 | -.192 |
| | | Sig. (2-tailed) | .000 | .000 | | .000 | .695 | .169 |
| | | N | 53 | 53 | 53 | 53 | 53 | 53 |
| | Allocate budget to OH | Pearson Correlation | .697** | .993** | .994** | 1 | .070 | -.154 |
| | | Sig. (2-tailed) | .000 | .000 | .000 | | .619 | .270 |
| | | N | 53 | 53 | 53 | 53 | 53 | 53 |
| | Suitability of OH policies | Pearson Correlation | .186 | .060 | .055 | .070 | 1 | .298* |
| | | Sig. (2-tailed) | .183 | .668 | .695 | .619 | | .030 |
| | | N | 53 | 53 | 53 | 53 | 53 | 53 |
| | Leadership engagement | Pearson Correlation | -.265 | -.164 | -.192 | -.154 | .298* | 1 |
| | | Sig. (2-tailed) | .055 | .241 | .169 | .270 | .030 | |
| | | N | 53 | 53 | 53 | 53 | 53 | 53 |
| **. Correlation is significant at the 0.01 level (2-tailed).**. Correlation is significant at the 0.01 level (2-tailed). | | | | | | | | |

There was no statistically significant correlations between respondents' scores of suitability of existing policies for implementation of the OH approach their scores of proposed policy interventions in the Likert scale. However, there were perfect correlations between respondents' scores of the propositions that a stand-alone policy should be developed, OH office should receive direct allocation of funds by government and that ZDU should be housed higher than the two parent ministries ((Rs (51) = 0.99, p <0.001). This finding shows that respondents who were in favour of development of a stand-alone policy also tended to favour direct allocation of resources to the OH office by government and housing of the office higher than the current ministries.

There was a strong and statistically significant correlation between respondents' score of the statement that current policies should be reviewed to reflect OH approach and their scores of the statements that the OH office should receive direct funding from government ((Rs (51) = 0.70, p <0.001), that OH office should be housed higher than current ministries ((Rs (51) = 0.69, p <0.001) and that a stand-alone OH policy should be developed ((Rs (51) = 0.68, p <0.001). These associations would have been modulated by the fact that almost all respondents scored in favour of review of policies to reflect the OH approach hence tending to diminish correlation of scores of this intervention with the scores of other interventions.

These findings suggest that there are significant policy constraints in the implementation of the OH approach among the organizations studied. Review of policies to reflect the OH approach, allocation of funds by government to the OH approach and elevation of the

status of the OH office to a higher place of policy are important policy interventions that could be considered in order to mainstream OH approach and implement it sustainably.

These findings were corroborated by the key informants. Most of them expressed reservations on the adequacy of existing policies for implementation of OH approach and proposed that they needed to be reviewed to better reflect the OH approach. Conversely, some of the informants pointed out that progress had been made to improve the policy situation for implementation of the OH approach in Kenya citing the new Veterinary Policy which explicitly reflected the OH approach. They felt though that the OH approach should similarly be reflected more clearly in human health and environment sectors. Most key informants argued that without clear statements about the OH approach in organizational policies, it would be difficult to mainstream the approach into the sectors. One key informant explained this as follows:

“Without a policy, only leadership will push the approach. We have been lucky we had people that understand the approach...ZDU was the vision of leaders. A policy and a budget to support the unit are needed for sustainability.”

Some informants held the view that development of a stand-alone policy though a desirable ultimate goal could take a long time to develop and would involve much more canvassing with the politicians. One key informant stated:

“At some point it has been something like, why don't we develop a One Health policy- a stand-alone? But again we ask ourselves, is this the way we want to

go?...because policies take a long, long, long time...it is not something you just do....like the veterinary policy has taken years...years and years.”

4.8 Implementation of the OH Approach

The study sought to establish how the OH approach was being implemented by the ZDU and core implementers. Since implementation functions of the ministries are devolved to county level direct measurement of the level of implementation of the OH approach was beyond the scope of the current study. The study therefore used the views of key informants and data from review of documents available from the ZDU as indicators of how the OH approach was being implemented.

The key informants cited various activities that were being undertaken under the OH approach such as: joint research projects, sensitization workshops, pre-service and post-service training, and various disease preparedness and response activities. One key informant gave an example of a reaserch project that was conducted using the OH approach:

“Let me give a case of the Arbovirus Incidence and Diversity (AVID) project that was funded by google.com. from 2009 to 2011 to map viral diseases using the OH approach. The project brought together almost all the sectors in Kenya, KWS, livestock, vector specialists... Through this project, knowledge was exchanged among involved organizations, trust among participating colleagues from different institutions was developed, a community of practice was created, vehicles and laboratory strengths were shared among institutions and joint

publications were made. Although this was a one-time project, the networks established have continued to be useful in addressing other disease matters using a One Health approach. Hence the OH approach was tested before the creation of ZDU”

Two of the key informants stated that the OH approach had been incorporated into pre-service training of students at university level particularly in the faculty of Veterinary Medicine, School of Public Health and School of Nursing of the university of Nairobi and other universities participating in the One Health Central and East Africa (OHCEA). One of the key informants narrated:

“The OH approach is very much part of our curriculum-our curriculum has been reviewed to include OH approach and it is already approved. We have a students’ OH club-the students go out to communities to assist with issues such, jiggers, rabies, community work, planting trees...:We have established OH demonstration sites where students are taken to learn practical application of the OH concept.... We take the 5th years to hospitals to collect data on zoonoses ... modules on OH have been developed for interested students and they are usually on Saturdays”.

The documents from ZDU reviewed comprised of: the strategic plan for implementation of OH in Kenya 2015-2017; ZDU project reports; the strategic plan for the elimination of human rabies in Kenya 2014-2030; the Kenya zoonotic diseases prioritization report 2015; the 2017 draft report on evaluation of devolution of OH approach to counties; the draft report of the WHO Joint External Evaluation (JEE) for Kenya of 2017; the National

Policy for the Prevention and Containment of Antimicrobial Resistance and National Action Plan on Antimicrobial Resistance.

Based on the review of documents, the study found that the OH approach is being implemented in Kenya in various ways. In 2011 the ZDU was established to coordinate the implementation. This was followed by the development of the OH strategic plan in 2012. Based on the strategic plan, programs and projects are being implemented to prevent and control of zoonotic diseases using a OH approach. An example of such programs is the Rabies Elimination Program that is being piloted in select counties under the Strategic Plan for the Elimination of Human Rabies in Kenya which runs from 2014 to 2030. This program entails concerted multisectoral efforts involving MOH, MALF and other stakeholders to eliminate preventable human deaths by working with local communities to educate them about rabies and vaccinate their dogs. Similar programs are being developed to address other zoonotic diseases such as Anthrax and Brucellosis.

The documents review further indicated that the terms of reference of ZDTWG and ZDU were undergoing review to transform these entities into a national OH platform with a broader mandate capable of coordinating issues beyond zoonotic diseases such as antimicrobial resistance, food safety and environmental health. Proposals contained in these reports envisage empowering the OH platform through advocacy for government budgetary allocations and enhancing staff strength and inclusivity.

In March 2017, the core OH implementers underwent a joint external evaluation of their core capacities under the framework WHO International Health Regulations (IHR, 2005). Among the important aspects evaluated were the capacities of the organizations for multisectoral collaboration under the OH approach. The evaluation report singles out the OH approach as one of the strong areas under the countries core capacities for preparedness and response to zoonotic diseases and other public health events. An excerpt from the report says:

A multidisciplinary technical working group on AMR surveillance is in place at national level and a national strategy and action plan for AMR has been jointly drafted by MoH and MoA. With respect to zoonotic disease, there is a “One Health” technical working group (OHTWG) and a Zoonotic Disease Unit (ZDU) with very competent staff jointly established by MoH and MoA to support coordination at national level and the one health approach has been introduced in 32 of 47 counties and staff trained.

The overall impression from these assessment is that the ZDU and core OH implementing organizations are making significant progress in implementation of the approach despite the constraints that they may be facing.

4.8 Constraints and Recommendations

In order to gain further insight into the priority areas that may need to be addressed to enhance implementation of the OH approach, the study asked respondents to state the

overall constraints to implementation of the OH approach and to make recommendations to the authorities concerned. The results are presented in this section.

4.8.1 Overall Constraints to Implementation of the OH Approach in Kenya

The results of respondents' views on overall constraints to implementation of the OH approach are presented in Table 4.37. From the findings, 27/53 (54%) of the respondents stated that inadequate funding was the overall constraint to implementation of the OH approach. According to 8/53 (16%) lack of OH policy was the main impediment to implementation of the approach. Further, 7/53 (14%) of the respondents opined that limited awareness about the OH approach among the public was the key inhibitor to implementation of the approach. Other constraints that were stated by fewer numbers of respondents were: inadequate technical capacities (3/53); limited ownership among high level officials (2/53); weak leadership and decision making skills (1/53); weak political will (1/53) and coordination weaknesses (1/53).

Table 4.37. Overall constraints in the implementation of OH approach in Kenya

| | Frequency | Percent |
|---|-----------|--------------|
| 1. Inadequate funding | 27 | 54.0 |
| 2. Lack of the OH policy | 8 | 16.0 |
| 3. Limited awareness among the public | 7 | 14.0 |
| 4. Inadequate technical capacities | 3 | 6.0 |
| 5. Limited ownership among the high level officials | 2 | 4.0 |
| 6. Coordination weaknesses | 1 | 2.0 |
| 7. Weak leadership skills and decision making | 1 | 2.0 |
| 8. Weak political will | 1 | 2.0 |
| Total | 50 | 100.0 |

The large proportion of respondents citing inadequate funding as the overall constraint suggests that this may be the most important and/or most felt constraint to implementation of the OH approach among the ZDU and core OH implementers. Inadequate funding is related to lack of OH policy (the next second highly mentioned constraint) as policies are viewed as a strong justification for allocation of government resources as well as a basis for institutionalization of approaches or programs. Similarly, limited awareness about the OH approach among the public (the third highly mentioned constraint) affects both government policy and funding since the government usually develops policies and allocates money to issues that the public appreciates as important.

These findings on constraints were reinforced by key informants. Most of them affirmed that financial resources were a challenge to implementation of the OH approach. They explained that OH programs were largely donor-driven and government money was quite limited threatening sustainability. They argued that programs were sometimes unable to adequately address local priorities due to the interest and the conditionality of donors. One key informant explained:

“...I think one constraint is funding, particularly from the government. We are happy that donors are interested...for instance EU is coming in to fund the rabies elimination strategy in addition to CDC. Funding is key...and I think I said that donors have their own priorities. Government money is not enough –Government should put in some good money to support operations of the unit. That is for sustainability”

Funding was noted as a big constraint to getting the OH approach to the counties and this is aggravated by new levels of bureaucracy that counties create. One key informant expressed it as follows:

“You have to get to only a few counties, counties are too many to reach all of them...County officers are not answerable to national level...when you call them to a meeting sometimes what they want is per diem, not to own the approach....there is need to reach to counties especially those with challenges such as anthrax. It is very expensive to do that work. There is a further challenge of some people not being so keen”

Most of the informants also indicated that the environment and ecosystems sectors were not yet adequately involved in the OH approach and that greater awareness about their roles needed to be created. One key informant explained it as follow:

“...the other constraint is co-ordination especially in terms of environmental sector... ...environmental health has not come in very strongly...it seems the approach is still a “preserve” of human health and animal health and more specifically towards livestock bias, which you expect in a country in which really livestock is a major economic driver...so we still require much more incorporation of ...and awareness of the environmental aspect the ecosystem aspect so that it is brought in...because if you look even at how the ZDU is structured you do not have somebody to represent the environmental health or ecosystem health aspect.”

Some of the informants also pointed out that lack of policy and legal backing for ZDU was a major challenge for the approach. One key informant expressed it as follows:

“...Give legal authority and power to ZDU! For instance the National Transport and Safety Authority (NTSA) has been legally empowered... when they stop you on the road, you assume they have power... ZDU has built the technical infrastructure, now they need to build legality to grow faster... They are well intended but they have no legality.”

4.8.2 Respondents’ Recommendations to Authorities Concerned with OH Approach

The study asked respondents to make recommendations to the authorities concerned with the OH approach. The results are presented in Table 4.38.

Respondents made diverse recommendations to the OH authorities the most frequent being that concerned authorities should enhance public education and awareness concerning the OH approach (8/45), allocate more resources for implementation of the approach (6/45), include the OH approach in pre-service training (6/45) and review existing policies to reflect the OH approach (5/45). Other recommendations were that the concerned authorities should: create an independent authority to take the functions of the OH approach; develop a stand-alone OH policy; widen inclusion of the OH approach; broaden staff and expertise in the OH approach; devolve the OH approach to counties; create a section in each ministry to coordinate the OH approach; enhance joint training

and sensitization in OH approach; strengthen data and information sharing; develop time-bound joint programs; and improve coordination of the OH approach.

Table 4.38 Respondents’ recommendations to authorities concerned with OH approach

| | Frequency | Percent |
|--|------------------|----------------|
| 1. Enhance public education and awareness | 8 | 17.8 |
| 2. Allocate more resources | 6 | 13.3 |
| 3. Include the OH approach in pre service training courses | 6 | 13.3 |
| 4. Review existing policies | 5 | 11.1 |
| 5. Create an independent authority to take the function of the OH approach | 4 | 8.9 |
| 6. Develop a stand-alone OH policy | 3 | 6.7 |
| 7. Widen inclusion of OH approach | 2 | 4.4 |
| 8. Strengthen data and information sharing | 2 | 4.4 |
| 9. Develop time bound joint programs | 2 | 4.4 |
| 10. Devolve the OH approach to the county | 2 | 4.4 |
| 11. Creating a section in the ministry to coordinate the OH approach | 1 | 2.2 |
| 12. Enhanced joint training and sensitization | 1 | 2.2 |
| 13. Broaden the staff and expertise | 1 | 2.2 |
| 14. Improve coordination of the OH approach | 2 | 4.4 |
| Total | 45 | 100.0 |

4.9 The Future of OH Approach in Kenya

The study gathered the views of the key informants on the future prospects of OH the approach in Kenya. All of them affirmed that the OH approach had a bright future in Kenya. They based their outlook mostly on their understanding that the approach was the most effective way to address the challenge of emerging public health threats including zoonotic diseases and other events. One key informant expressed it emphatically:

“...the future? It is already here! and...sioni ikirudi nyuma (I do not see it turning back)...no, no. I think the future is bright...the future is very bright for OH...and you know that is the way to go to tackle zoonotic diseases.”

Another key informant expressed it as follows:

“It has a future... It has a big future. We have been able to set it up and it is moving... it is working. If we can be able to surmount those challenges, the future is bright. We have a technical team that is ready and willing to push it forward. And definitely even the policy makers as much as possible we are trying to bring them in.”

Another key informant stated:

“The future of OH is bright. Once we have a OH policy in place, OH approach will be part of our lives-starting from down going all the way up. Since the government agreed to set up the Zoonotic Disease unit (ZDU), the future is bright. We have now to work very hard to see that we have a policy for government ownership. Policy is for central government.”

One key informant felt that though the future for the OH approach in Kenya was bright, it was contingent upon several factors. He explained:

“Going by the trends, the future is bright...it is promising. Kenya has taken leadership which we are keen to maintain. There are key assumptions, however: that partner support will continue and increase or improve and that the world will still feel this is an important agenda going forward... this like other things depend

on the mood of the world. Possible competing agenda like global warming or something else could take over.”

The findings from the key informants' views on the future of OH approach in Kenya show that there is great optimism about the OH approach in Kenya from these leaders. However, the key challenges identified in the current study need to be addressed to ensure that the approach is sustainable.

CHAPTER FIVE

SUMMARY OF FINDINGS, DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This study sought to determine the influence of intersectoral collaboration factors, namely awareness, leadership, technical capacities and policies on the implementation of the OH approach in Kenya. This chapter provides the summary of the findings, discussion, conclusions and recommendations of the study based on its objectives. The chapter also presents the suggestions for further studies.

5.2 Summary of Findings

This section presents the summary of findings by objective under four themes, namely awareness and implementation of OH approach; leadership and implementation of the OH approach; technical capacities and implementation of OH approach; and policies and implementation of the OH approach. The key challenges and prospects of the OH approach are also summarized in this section.

5.2.1 Awareness and Implementation of OH Approach

The study found that the level of awareness about the OH approach among technical personnel in the ZDU and core OH implementers was high within specific departments or divisions but average or low and variable in the wider organizations. It depended on factors such as the nature of work, education backgrounds and levels of sensitization of the personnel.

Using the Spearman's Rank Order correlation, the study found a weak but statistically significant correlation between awareness about the OH approach and academic qualifications ($R_s(51) = 0.37, p = 0.007$). There was also a moderate and statistically significant correlation between level of awareness about the OH approach and sensitization on the same ($R_s(51) = 0.55, p < 0.001$). Likewise there was a weak but statistically significant correlation between sensitization on the OH approach and knowledge of the functions of the ZDTWG ($R(49) = 0.43, p = 0.001$).

The study established that sensitization contributed positively to knowledge and attitudes of personnel about the OH approach as well to their participation in implementing the approach and to their career advancement. However, the study also showed that awareness about the OH approach among personnel did not always translate to their participation in its implementation due to several other barriers such as bureaucracy, inadequate resources, shallow understanding of practical aspects of the approach and limited opportunities to practice the approach. Overall, the study found that awareness was a major gap in implementation of the approach as acknowledged by 87% of the respondents and most of the key informants. The study revealed the importance of scaling up sensitization, enhancing training and expanding public participation on the OH approach.

5.2.2 Leadership and Implementation of the OH Approach

The study established that leaders in the ZDU and core OH implementers have embraced the OH approach as acknowledged by 73% of the respondents. The study however demonstrated that embracing the OH approach did not always cause leaders to participate in practical implementation of the approach due to certain barriers such as narrow stakeholder participation in the approach, weak capacities for implementation, weak institutional framework(s) and limited resources. The study further showed that top government leaders were not well sensitized about the OH approach as acknowledged by over 85% of the respondents.

Using the Spearman's Rank Order correlation, the study demonstrated a moderate and statistically significant positive correlation between the levels to which respondents had played leadership roles in implementing the OH approach and their levels of awareness ($R_s (51) = 0.54, p < 0.001$). Similarly, there was a moderate and statistically significant positive correlation between the levels to which respondents had played leadership roles in implementing the approach and their state of sensitization ($R_s (51) = 0.52, p < 0.001$). Further, there was a weak but statistically significant negative correlation between respondents' levels of participation in leadership capacity in the implementation of the OH approach and gender (1=male, 2=female) ($R_s (51) = 0.29, p = 0.023$).

The study established that inspirational roles such as staff motivation and empowerment and goal oriented roles such as planning and resource mobilization were important in the implementation of the OH approach. Further, collaborative leadership skills such as

balancing power and creating ownership were shown to be important aspects of leadership for the OH approach. Overall, the findings of this study underline the importance of leadership in the implementation of the OH approach in Kenya and the need for more sensitization and training of leaders on the OH approach.

5.2.3 Technical Capacities and Implementation of the OH Approach

The study established that information, knowledge and data were the technical resource acknowledged most widely as a positive contributor to implementation of the OH approach as supported by 84% of the respondents. The study further established that laboratory facilities, skilled human resources, joint research platforms, and logistics such as vehicles and office space were other well appreciated technical resources in the implementation of the OH approach.

Using the Spearman's Rank Order correlation, the study showed a weak but statistically significant positive correlation between respondents' scores of the contribution of technical capacities to implementation of the OH approach and the levels to which they had played leadership roles in implementing the approach ($(R_s(51) = 0.28, p = 0.043)$). The study further demonstrated a moderate and statistically significant positive correlation between respondents' scores of the contribution of technical capacities to implementation of the OH approach and their scores of the influence of sharing information and knowledge on implementation of the approach and their ($(R_s(51) = 0.61, p < 0.001)$).

Further, there was a strong and statistically significant positive correlation between the influence of laboratories and the influence of joint research platforms to implementation of the OH approach ($(R_s(51) = 0.71, p < 0.001)$). Similarly, there was a strong and statistically significant positive correlation between the influence of laboratories and the influence of logistics on the implementation of the OH approach ($(R_s(51) = 0.71, p < 0.001)$). Further, there was a strong and statistically significant positive correlation between the influence of information and knowledge and the influence of joint research platforms to implementation of the OH approach ($(R_s(51) = 0.69, p < 0.001)$). Likewise, there was a strong and statistically significant positive correlation between the influence of information and knowledge and the influence of human resources to implementation of the OH approach ($(R_s(51) = 0.69, p < 0.001)$). Finally, the study demonstrated a strong and statistically significant positive correlation between the influence of logistics and vehicles and the influence of human resources to implementation of the OH approach ($(R_s(51) = 0.78, p < 0.001)$).

The study found a number of interventions that can enhance the contribution of technical resources to implementation of the OH approach, namely: developing better coordination and collaboration frameworks for sharing of technical capacities; scaling up sensitization and training of personnel on the OH approach; and improve working tools such as laboratory and ICT facilities.

5.2.4 Policies and Implementation of the OH Approach.

The study established that the current organizational policies, except the new Veterinary Policy, do not sufficiently provide for implementation of the OH approach and they need to be reviewed as affirmed by 98% of the respondents. The study also found that developing a stand-alone OH policy, allocating government funds to the OH office, and elevating the office to a position of greater policy decision making authority are other policy interventions that could be considered in order to sustainably implement the OH approach.

Using the Spearman's Rank Order correlation, the study demonstrated a weak but statistically significant positive correlation between respondents' scores of suitability of organizational policies for implementation of the OH approach and the level to which they had played leadership roles in its implementation ((Rs (51) = 0.28, p = 0.046). Also, there was a weak and marginally significant negative correlation between the levels to which respondents had played leadership roles in implementing the OH approach and their likert score of the proposition that existing policies should be reviewed ((Rs (51) = -0.26, p = 0.055)

Further, respondents' scores of the propositions that a stand-alone policy should be developed, OH office should receive direct allocation of funds by government and that ZDU should be housed higher than the two parent ministries correlated with each other perfectly ((Rs (51) = 0.99, p <0.001). Likewise there were strong and statistically significant correlations between respondents' scores of the proposition that current

policies should be reviewed to reflect OH approach and their scores of any of the other three propositions, namely: that the OH office should receive direct funding from government ((Rs (51) = 0.70, p <0.001), that OH office should be house higher than current ministries ((Rs (51) = 0.69, p <0.001) and that a stand-alone OH policy should be developed ((Rs (51) = 0.68, p <0.001).

The findings affirm that there are gaps in policies that should be addressed in order to sustainably implement the OH approach. The study showed that addressing these gaps require enhanced public sensitization and participation and heightened advocacy on the OH approach.

5.2.5 Challenges and Prospects of the OH Approach

The study found that OH in Kenya is being implemented with significant progress. There are however some constraints that should be addressed to enhance implementation: these include: inadequate funding and lack of government budget for OH programs leading to donor-dependency; inadequate involvement of the environment and ecosystems sectors; and lack of policy and legal backing for ZDU; inadequate sensitization of senior government officials about the approach; narrow stakeholder participation; inadequate working tools; and the cost and other challenges of devolution. Despite these challenges, the study shows that the OH approach in Kenya has a bright future.

5.3 Discussion of the Findings

This section the key findings of the study will be discussed under the themes by objective, namely awareness and implementation of OH approach; leadership and implementation of the OH approach; technical capacities and implementation of OH approach; and policies and implementation of the OH approach.

5.3.1 Awareness and Implementation of the OH Approach

The study established that there is a high level of awareness about the OH approach within the departments/divisions of the DVS, MOH and KWS which deal with disease surveillance and related matters. The awareness is associated with positive attitude and enhanced participation in implementation of the OH approach among the personnel. This finding tallies with Alter and Hage (1993) who affirms that awareness is critical in overcoming barriers to cross-sectoral collaboration and it promotes willingness to collaborate, trust, and a perception of interdependence.

The depth of awareness varies among personnel suggesting that they are at different stages of awareness development about the OH approach. This is in conformity with Bech's (2008) model that depicts awareness as an evolving process that starts from a general conceptual level to a more in-depth understanding of the issues and practical engagement in collaboration. The varied levels of awareness could be explained by the fact that personnel have been sensitized through different means ranging from meetings, social media, academic studies and participation in its implementation.

Awareness about OH approach at organization level is average, and limited to certain technical fields. This suggests that sensitization on OH is focused to specific units rather than being a systematic organization-wide process. The study established that awareness creation is a major gap in the implementation of OH approach. Gebreyes *et al.* (2014) argues that awareness creation for operationalizing the OH approach should reach target audiences at grassroots levels as well as the higher echelons. This underscores the need for organization-wide awareness creation about the OH approach in the organizations involved. This is important considering that the OH approach seeks to change an entrenched organizational culture of working vertically in ‘silos’ with little collaboration across organizations (Degeling *et al.*, 2015 World Bank, 2010).

5.3.2 Leadership and Implementation of the OH Approach

With regard to the influence of leadership on implementation OH approach, the study established that although leaders in the organizations believed in the OH approach, they were engaged only to an average or low extent in its implementation which presents a significant gap. Previous studies show that leadership is crucial in creating a strategic climate for implementation and sustainment of evidence-based practices (Aarons, Ehrhart, Farahnak & Sklar, 2014). Leaders also play an important role in improving collaboration across organizations (Van Gorder, 2015; Henry, 2015). Furthermore, they act as effective change agents in cross-organizational partnerships (Wooten *et al.*, 2006).

The study found that top government leaders are still not well sensitized about the OH approach which is a significant constraint to the implementation of the OH approach. Harman (2008) asserts that successful collaboration typically requires support from political leaders, opinion-makers and others who control valuable resources and thus give legitimacy to the collaborative process. Inadequate sensitization of top government leaders therefore means that buy-in and good-will for the implementation of the OH approach from top management is weak which could limit access to resources for its implementation.

The study found that, despite existing constraints, leaders in the organizations influenced implementation of the OH approach in various ways mostly through, planning and overseeing joint disease surveillance and response activities, training and sensitizing personnel on the OH approach, advocating for mainstreaming of the OH approach and developing institutional structures for its implementation. Capacity building on cross-sectoral leadership skills in the organizations could therefore enhance the roles of personnel in promoting implementation of the OH approach. This conforms to the assertion of Seims *et al.* (2012) that strengthening of leadership and management skills of health personnel plays an important role in improving service delivery outcomes.

5.3.3 Technical Capacities and Implementation of the OH Approach

On technical capacities, the study found that they significantly influence implementation of the OH approach. In particular, information and knowledge, skilled human resources, laboratory facilities, joint research platforms and field logistics were identified as

important technical capacities influencing implementation of the OH approach. This finding conforms with the observations of other writers who assert that effective collaboration requires robust public health and animal health systems that are compliant to WHO and OIE international standards (Siemens, 2010; World Bank, 2010; FAO, OIE and WHO, 2010). It also agrees with Gebreyes *et al.* (2014) who identified skilled-personnel and accredited veterinary and public health diagnostic laboratories with a shared database to be among the necessary technical capacities for implementation of the OH approach. Similar findings were obtained by Karimuribo *et al.*, (2012) who found skilled human resources, and transport and logistics to be among the important resources that positively influenced implementation of the OH approach in Tanzania. The current study further established that training specifically on the OH approach and improving working tools including laboratory equipment were also the areas that needed further improvement.

5.3.4 Policies and Implementation of the OH Approach

Regarding the influence of policies on implementation the OH approach, the study found that the suitability of existing policies for implementation of the OH approach is generally average or low except the veterinary policy which contains explicit statements on the OH approach. This is a significant gap to achieving objectives related to the OH approach including mainstreaming it into the relevant sectors and obtaining resources for its implementation. Brownson *et al.* (2009) underscores the importance of favourable policies in implementation of evidence-based practices. He asserts that the top 10 health achievements of the 20th century have all been influenced by policy change. The

implementation of OH requires sectoral and intersectoral policies that enhance collaboration of the ministries responsible for human health, animal health and environment among other sectors (AVMA, 2008).

The policy gap in implementation of OH seems to be a global issue: Degeling et al. (2015) assert that One Health approach, so far, has not included development of a comprehensive, ethically-informed policy and implementation framework a fact, they say, has limited its practical utility. The current study established that that there is need to review existing policies to better reflect the OH approach while, as a longer-term goal, a stand-alone policy on OH could be considered. The study further established the need for: allocation of funds by the government for implementation of OH; elevation of the OH office to a place of policy decision making; and more involvement of the ministry of environment in the institutional framework for the OH approach.

5.4 Conclusions

This study has established that awareness, leadership, technical capacities and policies are important factors that influence implementation of the OH approach in Kenya. Although these factors have contributed positively to the approach in various ways, there are weak areas that should be improved to enhance sustainable implementation of the approach. In particular, awareness is limited to few sections within the participating organization thus limiting stakeholder participation. Also, despite the fact that senior personnel believe in the OH approach, they do not engage fully in its implementation possibly due to limited understanding of its practical application, inadequate resources

and weak implementation frameworks. In addition, top government leaders are not sensitized about the approach which could hinder access to resources for implementation of the approach. Technical capacities including human skills and working tools are insufficient and modalities for sharing these resources are often not clear. Finally, existing organizational policies, except the new veterinary policy, do not adequately reflect the OH approach and which could hinder mainstreaming of the approach and allocation of government resources for its implementation.

5.5 Recommendations

Based on the findings, the study made the following recommendations;

- i. Awareness creation and sensitization about the OH approach should be scaled up using an organization-wide and ‘whole-of-society’ approach that includes all departments, the public and concerned communities
- ii. All personnel in leadership positions in the organizations involved in the OH approach, both technical and managerial, should be trained on practical application of the OH approach, given opportunities and resources to support its implementation, and their support evaluated as part of their performance targets.
- iii. Concerned authorities should review existing frameworks and modalities for sharing of existing technical capacities among the organizations in addressing OH matters and should also scale up technical capacity building for the approach.
- iv. A policy framework for the OH approach should be developed to guide review of existing policies to reflect the OH approach and incorporation of OH statements in upcoming new policies and national strategic documents in all relevant sectors.

5.6 Suggestions for Further Studies

Further research should expand this study to county levels and look more closely into each of the individual factors especially leadership engagement in implementation of OH approach.

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APPENDICES

Appendix I: Letter of transmittal of instruments

Thomas Manyibe Nyariki
P.O. Box 24191(00502), KAREN
P.O. Box 24191(00502), KAREN
Cell phone +254722587938
nyarikitom@gmail.com

Date.....

Dear Respondent,

RE: INVITATION TO PARTICIPATE IN A RESEARCH STUDY

I am a post graduate student from the University of Nairobi, Department of Extra Mural Studies pursuing a Master of Arts in Project Planning and Management. In this study you will be issued with a questionnaire aimed at gathering information on the study entitled “cross-sectoral collaboration factors that influence the implementation of One Health, in Kenya: A case of the Zoonosis Disease Unit and affiliated organizations”. You been selected to take part in the study as a respondent.

I kindly request you to take time and respond to the questionnaire items and give honest information to the best of your knowledge. The information you provide will be used for the purpose of the study only and your identity will be held confidential. While you may not experience any direct benefits from the participation, information collected from the study may help the sectors that deal with the health of humans, animals and environment collaborate better towards achieving optimal health for all. In case the study will be of interest to your organization, it can be availed once the study is complete.

By signing the section below, you are indicating your consent to participate in the study.

Signature.....

Your participation is highly appreciated.

Nyariki Thomas Manyibe
University of Nairobi.

Appendix II: Questionnaire on cross-sectoral collaboration factors and implementation of OH approach in Kenya

Instructions

This questionnaire is aimed at obtaining your views on the factors that influence the implementation of **One Health (OH)** approach in Kenya. Section A of this questionnaire is meant to get general information. The subsequent sections (B-E) are meant to get your view on how awareness, leadership, technical capacities and policies respectively influence the implementation of the OH approach in Kenya.

Kindly take some time and **answer all** the questions honestly and to the best of your knowledge. All information that you provide will be used only for the purpose of this study.

Section A: General Information

For questions 1-6 circle give your responses by ticking the most appropriate option in multiple-choice questions or writing your answer in the spaces provided in the open questions.

1. Age (circle one option)
 - a. 22-35 years (1)
 - b. 36-45 (2)
 - c. 46-55(3)
 - d. Above 55 (4)

2. Gender (circle one option)
 - a. Male
 - b. Female

3. What organization do you work in?

4. How long have you been working in your current organization?
 - a. 4 years and below (1)
 - b. 5-10 years (2)
 - c. 11-15 years (3)
 - d. 16 years and above (4)

5. What is your current job designation/deployment?

6. What is your highest level of academic qualifications?

Section B: Awareness and implementation of the OH approach in Kenya

7. Tick the statement that best describes your level of awareness about the OH approach

- a. Very low (1)
- b. Low (2)
- c. Average (3)
- d. High (4)
- e. Very high (5)

8. Have you been sensitized about the OH approach?

- a. Yes
- b. No

Explain your answer below:

9. How has level of awareness about the OH approach influenced your participation in its implementation?

10. Tick the statement which best describes the level of awareness about the One Health approach in your organization

- a. Very low
- b. Low
- c. Average
- d. High
- e. Very high

11. Which are the key ministries involved in the OH approach?

12. What are the functions of the Zoonotic Diseases Technical Working Group (ZDTWG) in Kenya according to you?

13. What are the functions of the Zoonotic Disease Unit in the Kenya in your understanding?

14. The statements in this part are intended to get your views on awareness of the OH approach and its implementation in Kenya. Indicate to what extent you agree with each of the statements by ticking in the appropriate box. The Key below shows how the boxes are numbered.

Key:

Strongly agree (5) Agree (4) Neither agree nor disagree (3) Disagree (2) Strongly Disagree (1)

| Awareness of OH and its implementation in Kenya | 5 | 4 | 3 | 2 | 1 |
|---|----------|----------|----------|----------|----------|
| f) Sensitization about the OH approach has enabled me to know about the approach and how it is implemented in Kenya | | | | | |
| g) Increased awareness about the OH approach has created in me a positive attitude towards collaborating with colleagues from other disciplines, organizations and sectors in matters of health | | | | | |
| h) Increased awareness about the OH approach has enhanced collaboration between my organization and organizations from other sectors on matters of health | | | | | |
| i) Awareness about the OH approach in my organization is limited to a narrow cadre of technical personnel that deal with specific aspects of health | | | | | |
| j) Awareness creation is a major gap in the implementation of OH approach in Kenya | | | | | |

15. Suggest ways in which the level of awareness about the OH approach in Kenya can be enhanced?

Section C: Leadership and Implementation of the OH approach in Kenya

16. Tick the statement that best describes the extent to which you have played leadership roles in implementation of the OH approach in Kenya.

- a. Very low
- b. Low
- c. Average

- d. High
- e. Very high

17. How have you, in your leadership capacity, helped in implementation of the OH approach?

18. How have other leaders influenced you in the implementation of the OH approach?

19. The statements in this part are intended to get your views on leadership and implementation of the OH approach in Kenya. Leaders in this question include supervisors, managers and all those in authority at different levels of the organization. Indicate to what extent you agree with each of the statements by ticking in the appropriate box. The Key below shows how the boxes are numbered.

Key:

Strongly agree (5) Agree (4) Neither agree nor disagree (3) Disagree (2) Strongly Disagree (1)

| Leadership and implementation of the OH approach | 5 | 4 | 3 | 2 | 1 |
|---|---|---|---|---|---|
| 1. Leaders in my organization have embraced the OH approach | | | | | |
| 2. Leaders in my organization are actively engaged in sensitizing personnel about the OH approach | | | | | |
| 3. Leaders in my organization have influenced personnel to adopt the OH approach | | | | | |
| 4. Leaders in my organization advocate for allocation of resources for implementation of the OH approach. | | | | | |
| 5. Leaders in my organization help to remove bureaucratic barriers to implementation of the OH approach | | | | | |
| 6. Leaders in my organization advise and guide personnel on practical implementation of the OH approach | | | | | |
| 7. Leaders in my organization promote team spirit in implementation of the OH approach | | | | | |
| 8. Top government leaders are still not well sensitized about the OH approach | | | | | |

20. In your opinion, what leadership functions are most influential in implementation of the OH approach in Kenya?

21. Suggest ways in which the current leadership/organizational structure of the OH approach in Kenya can be strengthened.

Section D: Technical Capacities and Implementation of the OH approach in Kenya

22. Tick the statement that best describes the extent to which technical capacities of collaborating organizations have contributed to implementation of the OH approach in Kenya.

- a. Very low
- b. Low
- c. Average
- d. High
- e. Very high

23. In which way (s) have technical capacities of collaborating organizations influenced implementation of the OH approach in Kenya?

24. List some of the technical resources that you have shared most during implementation of the OH approach in Kenya?

25. The statements in this part are intended to get your views on technical capacities and implementation of the OH approach in Kenya. Indicate to what extent you agree with each of the statements by ticking in the appropriate box. The Key below shows how the boxes are numbered.

Key:

Strongly agree (5) Agree (4) Neither agree nor disagree (3) Disagree (2) Strongly Disagree (1)

| Technical capacity and implementation of the OH approach | 5 | 4 | 3 | 2 | 1 |
|--|---|---|---|---|---|
| f) Sharing of laboratory facilities has enhanced implementation of the OH approach in Kenya | | | | | |
| g) Joint research platforms have contributed positively to implementation of the OH approach in Kenya | | | | | |
| h) Sharing of information and knowledge has enhanced implementation of the OH approach in Kenya | | | | | |
| i) Sharing of skilled human resources has contributed positively to implementation of the OH approach in Kenya | | | | | |
| j) Sharing of data and vehicles for joint field projects has enhanced implementation of the OH approach in Kenya | | | | | |

26. What aspects of capacity do you think should be addressed in order to enhance implementation of the OH approach in Kenya?

Section E: Policies and Implementation the OH approach in Kenya

27. Tick the statement that best describes the extent to which existing policies are favourable for implementation of the OH approach in Kenya.

- a. Very low
- b. Low
- c. Average
- d. High
- e. Very high

28. In your view, why are policies important for sustainable implementation of the OH approach in Kenya?

29. What things can be done to enhance the policy environment for sustainable implementation of OH approach in Kenya?

30. The statements in this part are intended to get your views on policies and implementation of the OH approach in Kenya. Indicate to what extent you agree with each of the statements by ticking in the appropriate box. The Key below shows how the boxes are numbered.

Key:

Strongly agree (5) Agree (4) Neither agree nor disagree (3) Disagree (2) Strongly Disagree (1)

| Environmental, Human and Animal health Policies and implementation of the OH approach | 5 | 4 | 3 | 2 | 1 |
|---|---|---|---|---|---|
| e) Existing policies should be reviewed to reflect the OH approach | | | | | |
| f) A stand-alone policy for the OH approach in Kenya should be developed | | | | | |
| g) The OH Office in Kenya should be housed higher than the two parent ministries, possibly in the Office of the president | | | | | |
| h) The OH approach should receive direct allocation of funds by the government | | | | | |

31. What are the main **overall** constraints to implementation the OH approach in Kenya?

32. Make any recommendation(s) to the authorities concerned with OH approach in Kenya on how implementation of the approach could be improved?

I thank you sincerely for your time

Appendix III: Interview guide for key informants

Q1. In your opinion, what factors have contributed to your passion for the OH?

Q2. What would you say is the level of awareness of the OH approach among the personnel of implementing organizations? How does this impact on the implementation of OH in Kenya?

Q3. What is the role of the leadership of the organizations involved in the OH approach? How has this influenced its implementation?

Q4. What is the importance of technical capacity in the OH approach? How has this influenced its implementation in Kenya?

Q5. What is the importance of human and animal health policies in the OH approach? How have they influenced its implementation in Kenya?

Q6. In your opinion, what other factors have positively or negatively influenced implementation of the OH approach in Kenya?

Q7. In your view, what is the greatest challenge or barrier to the implementation of OH in Kenya?

Q8. In your view, what has contributed to a great extent to the implementation of OH in Kenya?


Q9. Any other final point you wish to explain concerning implementation of the OH approach in Kenya?

I thank you sincerely for your time.

Appendix IV: Authorizations for the study

THIS IS TO CERTIFY THAT:
DR. THOMAS MANYIBE NYARIKI
of UNIVERSITY OF NAIROBI, 0-502
KAREN, has been permitted to conduct
research in Nairobi County
on the topic: CROSS-SECTORAL
COLLABORATION FACTORS AND
IMPLEMENTATION OF ONE HEALTH
APPROACH: A CASE OF THE ZOOONOTIC
DISEASE UNIT
for the period ending:
9th June, 2017

Permit No. : NACOSTI/P/16/67425/11597
Date Of Issue : 9th June, 2016
Fee Received : Ksh 1000



Applicant's Signature

Director General
National Commission for Science, Technology & Innovation



**NATIONAL COMMISSION FOR SCIENCE,
TECHNOLOGY AND INNOVATION**

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9th Floor, Utalii House
Uhuru Highway
P.O. Box 30623-00100
NAIROBI-KENYA

Ref. No.
NACOSTI/P/16/67425/11597

Date:

9th June, 2016

Dr. Thomas Manyibe Nyariki
University of Nairobi
P.O. Box 30197-00100
NAIROBI.

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on “*Cross-sectoral collaboration factors and implementation of one health approach: A case of the zoonotic disease unit,*” I am pleased to inform you that you have been authorized to undertake research in **Nairobi County** for the period ending **9th June, 2017.**

You are advised to report to **the County Commissioner, the County Director of Education and the County Coordinator of Health, Nairobi County** before embarking on the research project.

On completion of the research, you are expected to submit **two hard copies and one soft copy in pdf** of the research report/thesis to our office.

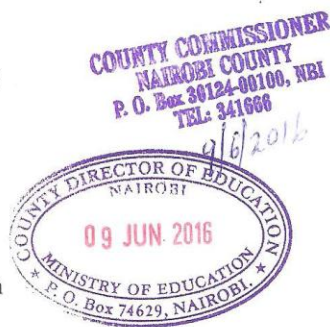

BONIFACE WANYAMA
FOR: DIRECTOR-GENERAL/CEO

Copy to:

The County Commissioner
Nairobi County,

The County Director of Education
Nairobi County.

The County Coordinator of Health
Nairobi County.





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KENYATTA NATIONAL HOSPITAL
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Ref: KNH-ERC/A/196

8th June, 2016

Nyariki Thomas Manyibe
ADM.NO.L50/76034/2014
School of Education
University of Nairobi

Dear Thomas

RESEARCH PROPOSAL- CROSS-SECTORAL COLLABORATION FACTORS AND IMPLEMENTATION OF THE ONE HEALTH APPROACH IN KENYA: A CASE OF THE ZOO NOTIC DISEASE UNIT(ZDU) (P417/05/2016)

This is to inform you that the KNH- UoN Ethics & Research Committee (KNH-UoN ERC) has reviewed and **approved** your above proposal. The approval period is from 8th June 2016 – 7th June 2017.

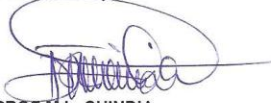
This approval is subject to compliance with the following requirements:

- a) Only approved documents (informed consents, study instruments, advertising materials etc) will be used.
- b) All changes (amendments, deviations, violations etc) are submitted for review and approval by KNH-UoN ERC before implementation.
- c) Death and life threatening problems and serious adverse events (SAEs) or unexpected adverse events whether related or unrelated to the study must be reported to the KNH-UoN ERC within 72 hours of notification.
- d) Any changes, anticipated or otherwise that may increase the risks or affect safety or welfare of study participants and others or affect the integrity of the research must be reported to KNH- UoN ERC within 72 hours.
- e) Submission of a request for renewal of approval at least 60 days prior to expiry of the approval period. (*Attach a comprehensive progress report to support the renewal*).
- f) Clearance for export of biological specimens must be obtained from KNH- UoN ERC for each batch of shipment.
- g) Submission of an *executive summary* report within 90 days upon completion of the study. This information will form part of the data base that will be consulted in future when processing related research studies so as to minimize chances of study duplication and/ or plagiarism.

For more details consult the KNH- UoN ERC website <http://www.erc.uonbi.ac.ke>

Protect to Discover

Yours sincerely,



PROF M.L. CHINDIA
SECRETARY, KNH-UoN ERC

- c.c. The Principal, College of Health Sciences, UoN
 The Deputy Director, CS, KNH
 The Assistant Director, Health Information, KNH
 The Chair, KNH- UoN ERC
 Supervisor: Dr. Mercy Mugambi, School of Education, UoN

Protect to Discover



MINISTRY OF HEALTH
OFFICE OF THE DIRECTOR OF MEDICAL SERVICES

Telephone: Nairobi 254-020-2717077
Email: dpphs.moh@gmail.com
When replying please quote:

Afya House
Cathedral Road
P.O. Box 30016 - 00100
NAIROBI

REF: MOH/HRD/1/(28)

24th June 2016

Dr. Thomas Manyibe Nyariki
University of Nairobi
P O Box 30197-00100
NAIROBI

RE: AUTHORITY TO COLLECT HEALTH DATA FROM MINISTRY OF HEALTH FOR A RESEARCH PROJECT

Your letter dated 19th June 2016 refers:-

You are a Masters of Arts in Project Planning and Management at the University of Nairobi, seeking authority to access Ministry of Health data for research Project titled, "**Cross-sectoral collaboration factors and the implementation of the One Health approach in Kenya: A case of the Zoonosis Disease Unit.**"

You have been authorized to collect and access the aggregated data from the Department of Preventive and Promotive Health. However, in cases where collection of data may involve interview of individuals in the Ministry, Personal informed consent from the respondents should be sought.

This office looks forward to completion of the study, and the Ministry will appreciate to receive copy of the research report.

Dr. Kioko Jackson K., OGW
AG. DIRECTOR OF MEDICAL SERVICES

KWS/BRM/5001

26 May 2016

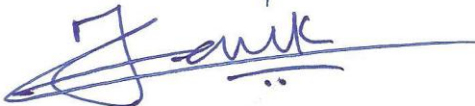
Dr. Thomas Manyibe Nyariki
P.O.Box 24191-00502, Karen
NAIROBI
e-mail: nyarikitom@gmail.com
mobile: +254722587938

Dear *Dr. Manyibe*

PERMISSION TO CONDUCT RESEARCH AT KWS VETERINARY DEPARTMENT

We acknowledge receipt of your letter dated 21st May 2016 requesting for permission to conduct research on a project titled: **Cross-sectoral collaboration factors and the implementation of the one Health approach in Kenya: A Case of the Zoonosis Disease Unit**. The study will generate data and information that will assist in the epidemiology and control of zoonotic diseases in the human-wildlife interface.

You have been granted permission to conduct the study from **June 2016 – May 2017** upon payment to KWS academic research fees of **Ksh.1,200** (data collection). However, you will abide by the set KWS regulations and guidelines regarding acquisition and dissemination of information and that the information acquired will be used for research and education purposes only. You will distribute the research questionnaires to the officers listed below for administration.

Yours *Sincerely*


DR. ERUSTUS KANGA
FOR: DEPUTY DIRECTOR
BIODIVERSITY RESEARCH AND MONITORING

Copy to:
- Head- Veterinary Services
- Training and Development Manager



REPUBLIC OF KENYA
MINISTRY OF AGRICULTURE, LIVESTOCK & FISHERIES
STATE DEPARTMENT OF LIVESTOCK
Office of the Director of Veterinary Services

Telephone: 020 – 8043441
E-mail: infodvs@kilimo.go.ke

Veterinary Research Laboratories
Private Bag, Kabete, Kangemi 00625
Nairobi

When replying, please quote:
REF: RES/GEN.VOLXII/120
All correspondences should be addressed to: The
Director of Veterinary Services

Date: 20th May, 2016

Dr Thomas Manyibe Nyariki, BVM,MSc,PhD
Student - University of Nairobi
P O Box 30197
NAIROBI

**RE: REQUEST FOR CONSENT TO CONDUCT RESEARCH FOR MASTER OF
ARTS**

Your letter dated 17th May, 2016 and your university letter Ref No.
UON/CEES/NEMC/23/275 dated 16th May, 2016 on the above subject refers.

The Director of Veterinary Services has no objection to Dr. Thomas Manyibe to conduct
the questionnaire and key informant interviews with technical staff in the directorate and
to access any relevant data on One Health implementation in Kenya.

He should also be free to consult on any other area of interest which may be of assistance
to his training.

Dr. Michael K. Chertiyot, HSC
For: DIRECTOR OF VETERINARY SERVICES