

**EVALUATION OF THE CURRENT ACCREDITATION MECHANISMS OF THE  
INSPECTION BODIES TO ISO/IEC 17020:2012**

**BY  
ESTHER MAKECHE**

**A mini-dissertation submitted to the University of Zambia in partial fulfilment of the  
requirements for the Degree of Master of One Health Food Safety.**

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## **DECLARATION**

I, Esther Makeche, do hereby declare that this piece of work is my own, and that all the work of other persons has been duly acknowledged, and that this work has not been previously presented at this University and, indeed, other universities for similar purposes.

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## **ABSTRACT**

Accreditation is the recognition that a facility or an institution can produce accurate results within acceptable limits on a consistent and substantial basis, thereby confirming the technical competency of the inspection body. This study aimed to evaluate the current accreditation mechanisms of the inspection bodies in Zambia to ISO 17020. Using a structured questionnaire, a cross-study was conducted to investigate the current accreditation mechanisms of inspection bodies in Zambia, particularly in the Lusaka District. Data management and analysis were performed using the Statistical Package for Social Sciences (SPSS) version 25. The study targeted the inspection bodies in Lusaka due to the abundance of inspectors and the many food manufacturing activities in the district. The sampling was purposively targeted at inspectors from two different inspection organisations. Thirty-four inspectors from the Zambia Compulsory Standards Agency (ZCSA) and Lusaka City Council (LCC) were interviewed.

The study revealed that inspection bodies were not accredited to ISO/IEC 17020:2012 despite being willing to be accredited to the international standard. The study further revealed that the inspectors had good levels of ISO/IEC 17020:2012 knowledge; and that the inspection bodies have necessary inspection procedures which are identified, developed, documented, and implemented.

Accreditation of inspection bodies to ISO/IEC 17020:2012 can promote confidence in bodies performing inspections in Lusaka, Zambia, as this will ensure that the inspection bodies carry out their inspection activities in a competent, consistent, and impartial manner, thus allowing them to use their professional judgments in the execution of their duties to enhance customer satisfaction.

## **DEDICATION**

This work is dedicated to my dear parents, Dadley Makeche and Iles N. Makeche, my husband, Eng. Peter Kabalata, and my sisters: Elizabeth Makeche, Evelyn Makeche, Emily Makeche and Soneka Makeche, for all the love and support given to me, so I can strive to be the best version of myself, and to my beautiful children Zoe and Zac Kabalata who always give me a reason to work hard. Without these people, I would not be who I am today.

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## ABBREVIATIONS AND ACRONYMS

<b>ABBREVIATION/ ACRONYM</b>	<b>DESCRIPTION</b>
DAKKS	Deutsche Akkreditierungsstelle
FAO	Food and Agriculture Organisation
HACCP	Hazard Analysis and Critical Control Points
IEC	International Electrotechnical Commission
INAB	Irish National Accreditation Body
ISO	International Organisation for Standardisation
LCC	Lusaka City Council
QA	Quality Assurance
QC	Quality Control
SADC	Southern African Development Community
SADCA	Southern African Development Community Cooperation in Accreditation
SADCAS	Southern African Development Community Accreditation Services
SDG	Sustainable Development Goals
SOP	Standard Operating Procedures
UN	United Nations
ZCSA	Zambia Compulsory Standard Agency

# 1. INTRODUCTION

## 1.1. Background

In the era of an open economy, quality has emerged as an essential parameter that determines the success or failure of an organisation. Though an elusive attribute, quality has always been an essential issue in the food industry. It is an integral concept that provides a competitive edge to one organisation over the other. How to establish a quality assurance system and implement the quality assurance system for overall upgrading of food quality and safety has become an essential topic. The inspection bodies, therefore, play a pivotal role in ensuring food safety is achieved by conducting routine and non-routine inspections in manufacturing premises and collecting samples of the different food staff, which are later subjected to laboratory analysis to ensure compliance of the product to their respective regulations and standards (DAkks, 2021).

In Zambia, particularly in Lusaka, there are two main inspection bodies which carry out inspections in food processing industries, these are namely; Zambia Compulsory Standards Agency which is guided by the Compulsory Standards Act No. 3 of 2017; and the Lusaka City Council, whose mandate is guided by the Public Health Act respectively.

Therefore, in order to build customer confidence, the quality of the work of the food industry should be done according to the developed quality assurance programs (DAkks, 2021). Nowadays, to enhance the quality and safety of food, standards such as ISO/ IEC 17020: 2012 (Conformity assessment of the requirements for various types of bodies performing inspection) are being used by inspection bodies.

According to Dakks, 2021, implementing ISO: 17020:2012 is helping inspection bodies gain the customers' confidence in the technical competence and recognition of good management practices.

Accreditation is the recognition that a facility or an institution can produce accurate results within acceptable limits on a consistent and substantial basis (Banerjee and Samaddar, 2020). Therefore, accreditation confirms technical competence (Technical requirements), and in the case of an inspection body, a permit and an audit report are deemed the only product.

The food industry in Zambia is an integral part of economic development as it creates investment opportunities across various levels of food production, both at primary and secondary levels (Phiri et al., 2019). Therefore, quality assurance (QA) becomes important due to the involvement of many stakeholders. Quality and safety are critical factors in the success of safeguarding public health. Quality and safety of food, as well as the success of any industry, can be regarded as the fulfilment of expectations (i.e., the satisfaction) of the consumers and other stakeholders. The food industry in Zambia has been struggling with quality issues for many years. The risks or hazards can be significantly reduced if the food industry embraces the concept of quality assurance and control. Quality Control (QC) is concerned with testing or supervising manufacturers' final product control, either by inspection of each unit or by sample testing. This is where accreditation turns out to be useful (FAO 2019).

Admittedly, there has been tremendous growth in inspection activities done by accredited bodies due to increased international trade and development in manufacturing and distribution technologies. It is important to note that inspection activities focus on health and safety, national and international trade, manufacturing and export worldwide, hence the need for inspection bodies to be also accredited to ISO/IEC 17020: 2012. This standard (ISO 17020: 2012) ensures that inspection bodies can carry out their inspection activities in a competent, consistent and impartial manner and allows them to use their professional judgments in the execution of their duties to enhance customer satisfaction (Excedr, 2022).

According to Blind et al., 2013, accreditation brings about mutual recognition for market access in high-income countries worldwide. Therefore, it can be concluded that technical cooperation programs for developing countries' conformity assessment services might be an effective means to increase the trade performance of these countries and safeguard public health (Blined et al., 2013). Against this background, this study aims to evaluate the current accreditation mechanisms of the inspection bodies in the Lusaka district to ISO/IEC17020:2012 by outlining some of the reasons preventing the inspection bodies from being accredited to the International Standard.

## **1.2.Problem Statement and Justification**

The global community emphasises the need for accreditation to safeguard the food safety of consumers and the technical competence of the inspection body (Irish National Accreditation

Body (INAB, 2020)). Despite the importance and benefits of accreditation, most of Zambia's inspection bodies remain unaccredited to ISO/ IEC 17020;2012. The lack of ISO 17020;2012 accreditation has brought about a lack of efficiency in conducting inspections, caused by overlapping inspection activities by the various inspection bodies, thus leading to a lack of confidence from both local and regional consumers at large, thereby leading to reduced foreign trade (INAB, 2020). Therefore, the need is to ensure increased efficiency in inspection activities while maintaining public/consumer confidence through accreditation by identifying the challenges faced, such as lack of political will, lack of core teams, inconsistent processes, improper documentation, untrained staff, inconsistent work, and the misconception on the benefits of accreditation (INAB, 2020)

Admittedly, there is a knowledge gap concerning this research, as little or no work has been done. Therefore, the various institutions can use the knowledge from this research on what has to be improved in the respective organisations for them to get accredited. In addition to the growing demand for value addition and increasing export of specific products by the government, the knowledge will further guide the policy/decision makers on the importance of accreditation and how they can support the regulatory institutions to attain accreditation to ISO 17020 and, the possible need for Zambia to establish her own national accreditation body. Such a body would provide training in the accreditation process to all the interested parties at a relatively lower price, allowing more inspection bodies to be accredited. This will contribute to the Sustainable Development Goals, particularly SDG 3 of Good Health and Well-Being.

Lastly, the current study is aimed at finding solutions to enable more inspection bodies to be accredited to ISO 17020 as it entails that regulators and government will rely on accreditation, thus obtaining a third-party, independent, and competent evaluation which provides objective results that support sound decisions in regulations, public procurement or delivery of products and services onto the market. This will then enable increased confidence in data generated during audits, reduction of uncertainties associated with decisions that affect the protection of human health and the environment, increased public confidence and formal recognition of competence, credibility, and integrity.

### **1.3.Main objective**

To evaluate the current accreditation mechanisms of the inspection bodies in Lusaka, Zambia, to ISO/IEC 17020: 2012.

### **1.4.Specific objectives**

1. To establish the accreditation status of the inspection bodies and their willingness to be accredited to ISO/IEC 17020:2012
2. To assess the levels of knowledge of the inspectors on ISO/IEC 17020: 2012
3. To determine whether the inspection bodies have necessary inspection procedures which are identified, developed, documented, and implemented.

### **1.5.Research questions**

1. Are inspection bodies in Lusaka accredited to ISO/IEC 17020: 2012?
2. What are the levels of knowledge of ISO/IEC 17020: 2012 among the inspectors?

## 2. LITERATURE REVIEW

### 2.1. Overview

Public awareness of food safety issues has increased dramatically worldwide “(Shareen, 2004)”, and, more recently, in developing countries “(UN, 2005)”. Consumers now demand higher-quality food produced in facilities that adhere to strict food safety systems “(UN, 2002)”. Customers are therefore willing to buy brand-name products produced by reputable industries with formally implemented food safety systems “(Brundtland, 2001)”. This international consumer trend has encouraged governments to adopt standards and control measures for food imported from foreign countries “(Sofos, 2008)”. This awareness of food safety has influenced international trade, and export conditions now dictate that trading countries must first meet specific technical requirements “(Shareen, 2004)”.

Consumer protection and the prevention of foodborne diseases are two essential elements of a food safety program. A contemporary model of food safety, called co-regulation that has gained international acceptance, now entails a shared responsibility among national governments, private operators in the food industry and consumers towards safe production and distribution of food “(Butler et al., 2003)”. This co-regulatory approach provides improved food safety assurance to the public, whereby food operators must now produce and process food within regulated and auditable risk-based food safety management systems “(Butler et al., 2003)”. Such systems include Hazard Critical Control Points (HACCP). The role of government within co-regulation is more focused on monitoring the continued effectiveness and relevance of these systems to ensure food safety “(Fearne and Martinez, 2005)”.

The International Organisation for Standardisation (ISO) has developed standards that provide a structure for compliance with a specific management system. “Gary (2003)”, noted a close consistency between the requirements of ISO/IEC 17020 standards and the production of quality and safe food. Compliance with relevant international ISO standards by countries, therefore, provides confidence to importing countries concerning the safety of imported food and food products from a public health and disease control perspective. According to “Fearne and Martinez (2013)”, governments worldwide have consciously decided to develop a robust and

internationally recognised and accredited ISO/IEC 17020: 2012 management system to strengthen their legislative mandate on quality and safety. Through the implementation of the ISO/IEC 17020: 2012 system, customer satisfaction surveys since 2007 reveal a general trend of satisfied customers, with an average customer satisfaction rate of 90% (range 80%–100%) in 2010 “(Fearne and Martinez, 2013)”. The ISO/IEC 17020:2012 accredited competency management system emphasises the provision of competent inspection services and has improved inspection and auditing of food business operators “(Cirkel, 2008)”.

## **2.2. History of quality standards**

The original motive for establishing ISO was to fulfil the need for an agreement on world standards to help the exporting industry rationalise the international trading process “(Vogt, 2001)”. ISO, International Organisation for Standardisation, is a non-governmental organisation established in 1947, composed of 167 national standard bodies, one from each country. “Vogt (2001)” further states that the mission of ISO is to promote the development of standardisation to facilitate the international exchange of goods. ISO work results in international agreements, which are published as International Standards([www.iso.org](http://www.iso.org)). The technical work is decentralised, carried out in a hierarchy of 262 technical committees. The Central Secretariat in Geneva ensures the flow of documentation in all directions. In order to follow technological developments, new methods and materials, and new quality and safety requirements, ISO has established the general rule that all ISO standards should be reviewed at intervals of no more than five years “(ISO, 2001)”. To understand ISO standards can be defined as documented international agreements containing technical specifications which can be used as guidelines or prototypes to ensure that products and services suit their purposes, such as a simple credit card whose format was defined by an ISO standard “(ISO, 2001)”. ISO operates a unique programme consisting of training seminars for developing countries, and this programme provides an essential mechanism through which developing countries may accelerate the advancement of their quality assurance system “(Hoolihan, 1999)”. ISO 17020 is an International Standard established to promote confidence in bodies performing inspections (Wood, 1998). According to “Anandavally (2001)”, inspection bodies carry out assessments on behalf of private clients, their parent organisations, or authorities to provide information about the conformity of inspected items with regulations, standards, specifications, inspection schemes or contracts. “Anandavally

(2001)" further states that inspection parameters include matters of quantity, quality, safety, fitness for purpose, and continued safety compliance of installations or systems in operation. The general requirements with which these inspection bodies are required to comply in order that their services are accepted by clients and by supervisory authorities are harmonised with ISO/IEC 17020: 2012.

### **2.3.Types of accreditations in the ISO/IEC 17000 series**

There are three types of ISO/IEC 17000 series, and these are;

#### **2.3.1. ISO/IEC 17021: 2015**

This standard covers certification bodies that offer management systems certifications such as ISO 22000 and ISO9001 “(ISO,2023)”.

#### **2.3.2. ISO/IEC 17025:2005**

This ISO standard specifies the general requirements needed to conduct testing, calibration, and sampling competently. It covers testing and calibrations conducted using standard, non-standard and laboratory-developed methods. Notably, this standard does not cover medical laboratories, and came about due to the need to improve on quality and competence of carrying out laboratory work during World War II “(Wilson et al., 2015)”.

#### **2.3.3. ISO/IEC 17065: 2012**

This standard for accreditation entails the requirements that prove consistent, competent operation and impartiality of bodies carrying out product certifications to give confidence to all parties interested in the specified product “(Denkler, 2012)”.

#### **2.3.4. ISO/IEC 17020: 2012**

It is a standard that ensures that inspection bodies carry out their inspection activities in a competent, consistent and impartial manner and allows them to use their professional judgments in the execution of their duties to enhance customer satisfaction “(Excedr, 2022)”.

## **2.4. The link between ISO 9001: 2015 and ISO/IEC 17020:2012**

“Excedr (2022)” states that it is essential to note that the requirements of ISO 9001:2015 are incorporated in ISO/IEC 17020: 2012, and this means that when an inspection body is accredited to ISO/IEC 17020:2012, it meets both the quality management system and technical competence requirements to meet customer satisfaction.

## **2.5. Explanation of Key Concepts**

“Banerjee and Samaddar (2020)”, described accreditation as a value-added recognition that any inspection body can achieve through the rigorous and critical assessment process by confirming its conformity to the specified standard. In other words, accreditation is attaining a certificate from internationally registered accreditation bodies after properly evaluating quality standards implemented by all the departments or management in a particular organisation. Notably, certification is approved in the organisation's favour based on the reports issued.

An inspection body is an organisation which examines and determines the conformity of materials, products, installations, plants, processes, work procedures or services to the relevant requirements and subsequent inspection reports “(INAB, 2020)”. Inspection bodies have various functions, which include; demonstrating that adequate confidence is provided and that an identified product, process, or service conforms to specific standards or requirements “(DAkks, 2021)”.

ISO/IEC 17020: 2012 is a conformity assessment tool for various types of institutions that carry out inspections, surveys and risk assessments, and is used to examine products, services, installations, manufacturing plants, processes or work procedures, and subsequent reporting of the results of the performed activities “(INAB, 2020)”. Notably, increased globalisation of markets has enhanced the use of standards to become important to the trading process, hence ensuring a level playing field in the market and also meeting internationally acceptable levels of performance and safety to protect the consumers by avoiding the production of substandard and counterfeit products “(Malebe, 2022)”. Therefore, accreditation is important as it is a widely used tool to verify compliance with standards.

“Aurora (n.d.)” indicated the advantages of accreditation, such as; increased confidence in data generated during audits, reduced uncertainties associated with decisions that affect the protection

of human health and the environment, and increased public confidence and formal recognition of competence, credibility and integrity.

“INAB (2020)” described how regulators set policy or detailed technical requirements and rely on accredited laboratories, inspection bodies or certification bodies to check for compliance. Therefore, this can reduce their in-house inspectorates and specialist assessment personnel to reduce costs or target their inspections more effectively. Accredited services can also moderate the need for additional legislation and reduce the risk of unintended consequences. “Malebe (2022)” adds that international accreditation arrangements provide regulators with a robust and credible framework to accept accredited test results, inspection reports and certifications from other countries, with an equivalent level of confidence as carried out in the local economy.

According to a report by “SADCA (2019)”, Zambia is a member of the Southern African Development Community (SADC), which has a subsidiary organisation known as Southern African Development Community Accreditation Service (SADCAS), a non-profit, multi-economy accreditation body that provides internationally recognised, cost-effective regional accreditation services for all its member states. The main aims of SADCA include the following:

- Supporting regional and international trade;
- Enhancing the protection of consumers and the environment; and
- Improving the competitiveness of SADC products and services in both the voluntary and regulatory areas;

Liaise with African Accreditation Cooperation It is, therefore, essential to note that there is no accreditation body in Zambia. Hence all ISO/IEC 17020:2012 accreditation services are being offered by SADCAS.

### **3. MATERIALS AND METHODS**

#### **3.1. Study design**

This cross-sectional study was conducted in Lusaka District using a structured questionnaire in the period between February 2021 and March 2021.

#### **3.2. Study site**

The study was conducted in Lusaka District, one of the districts within Lusaka Province of Zambia's provinces (see Appendix 2). This district was purposively selected due to its abundance of inspectors and huge economic activities (LCC-Lusaka City Council, 2022).

#### **3.3. Sampling Size and Frame**

The sampling was done purposively to target known inspection bodies in Lusaka District. A preliminary survey was first conducted to determine the number of inspectors working for ZCSA in the Lusaka District. It was found that in Lusaka, ZCSA had 20 employed inspectors, whereas the council had 45 employed inspectors. A total of 40 inspectors were to be interviewed, 20 from ZCSA and 20 from Lusaka City Council (LCC).

The sampling frame comprised inspectors from two inspection organisations: ZCSA and LCC, as these are the key inspection bodies mandated to regulate food industries as far as food safety is concerned.

#### **3.4. Data/sample collection methods**

The exercise was done through interviews using structured questionnaires (appendix 1) administered by the researcher. Two Inspection organisations (ZCSA and LCC), which contribute to trade facilitation and services, were visited. The two organisations are mandated to conduct food safety inspections by the Compulsory Standards Act No. 3 of 2017 and Public Health Act Cap 295, respectively. Key informants were purposively identified as inspectors and interviewed to learn their knowledge of ISO 17020:2012 and the challenges they face that could prevent them from being accredited to ISO 17020: 2012. The selection criteria were based on the involvement of public health activity in enhancing food safety and the increase in the manufacture of food commodities.

### **3.5. Inclusion criteria and exclusion criteria**

Only inspectors working for inspection organisations in the Lusaka district were included in the study. Those who refused to participate or opted to withdraw during the study were excluded, comprising six respondents.

### **3.6. Data analysis**

After data collection, the questionnaires were thoroughly checked for completeness and consistency. Data management and analysis were performed using the Statistical Package for Social Sciences (SPSS) version 25, then summarised and presented in table and figure form to facilitate understanding.

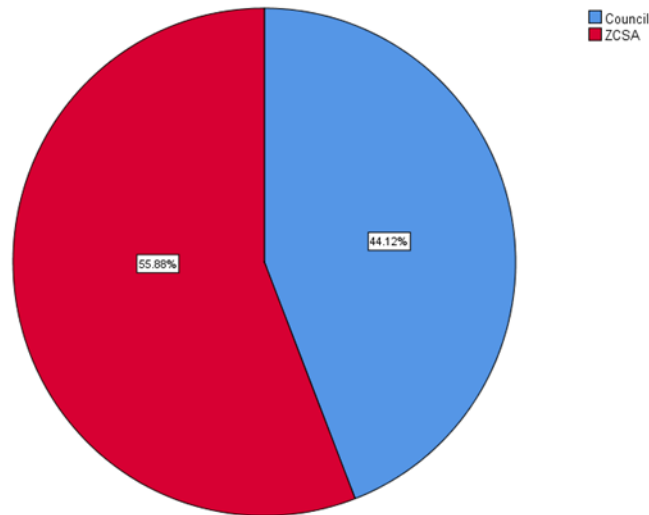
### **3.7. Ethical considerations**

Ethical approval was obtained from ERES CONVERGE IRB. The participants, 18 years and above, were informed about the study objectives and methodologies before data collection. Consent was also obtained from the respondents. The researcher adhered to the confidentiality of the respondents throughout the research process.

## 4. RESULTS

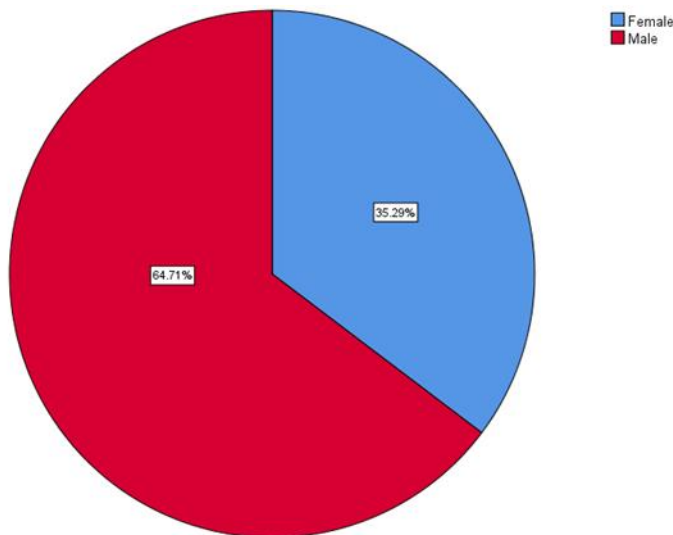
A total of 34 inspectors were interviewed from two different inspection bodies, namely ZCSA and LCC. The interview was done to evaluate the current accreditation mechanisms of the inspection bodies in Zambia to ISO 17020: 2012 by outlining some of the challenges preventing the inspection bodies from being accredited to ISO 17020: 2012.

The variables were grouped to give the overall picture, and findings have been presented in different forms comprising frequency/percentage tables and figures.



*Figure 4-1: Inspection institutions*

Figure 4-1 shows the institutions which formed the sampling frame. Most (55.88%) of the respondents were from ZCSA, while 44.12% were from LCC.



*Figure 4-2: Gender of the respondents*

Of the 34 respondents interviewed, 64.71% were female, while 35.29% were male.

*Table 4-1: Accreditation status and the willingness to be accredited (n=34)*

Survey Question		Frequency	Per cent (%)
An institution accredited to ISO 17020	I do not know	3	8.8
	Yes	0	0
	No	31	91.2
Want to have your institution to be accredited to ISO 17020	I do not know	3	8.8
	Yes	31	91.2
	No	0	0
Able to afford the application fees for the Accreditation	I do not know	12	35.3
	No	6	17.6
	Yes	16	47.1
Institutions be willing to meet Accreditation fees	I do not know	11	32.4
	No	1	2.9
	Yes	22	64.7
Able to specify which areas your institution would want to seek Accreditation	I do not know	4	11.8
	No	10	29.4
	Yes	20	58.8

The responses from 34 respondents on accreditation status and the willingness to be accredited to ISO/IEC 17020: 2012 are shown in Table 4-1. The results indicated that 91.2% of the respondents did not know any accredited institution; consequently, 91.2% also wanted to have their institutions accredited. The least responses came from whether their institutions could afford the application fees for accreditation.

**Table 4-2: Levels of knowledge of the inspectors on ISO/IEC 17020: 2012 (n=34)**

Survey Question		Frequency	Per cent
Heard about Accreditation standards	No	5	14.7
	Yes	29	85.3
	I Do not know	0	0
Heard of the ISO 17020	No	6	17.6
	Yes	28	82.4
	I Do not know	0	0
Understand what ISO 17020 entails	I do not know	1	2.9
	No	8	23.5
	Yes	25	73.5
Aware of the accreditation procedures/mechanisms of ISO 17020	I do not know	2	5.9
	No	9	26.5
	Yes	23	67.6
Understand the benefits of being Accredited to ISO 17020	I do not know	1	2.9
	No	11	32.4
	Yes	22	64.7
Know any institutions that offer Accreditation to ISO 17020	No	11	32.4
	Yes	23	67.6
	I do not know	0	0
Institutions that offer Accreditation to ISO 17020 are easily accessible	I do not know	9	26.5
	No	15	44.1
	Yes	10	29.4
Know of any institutions in Africa that are accredited to ISO 17020	I do not know	3	8.8
	No	14	41.2
	Yes	17	50.0
Accreditation to ISO 17020 can enhance quality assurance in inspection activities	I do not know	2	5.9
	Yes	32	94.1
Understand the Accreditation criteria for ISO 17020	I do not know	2	5.9
	No	11	32.4
	Yes	21	61.8

Table 4-2 Shows the responses of the staff concerning their levels of knowledge of ISO/IEC 17020: 2012. According to the questions asked, most responses were received on knowledge of what accreditation standards are, ISO/IEC 17020:2012 an awareness of the ISO/IEC 17020 accreditation processes. However, the least responses from the knowledge of whether the

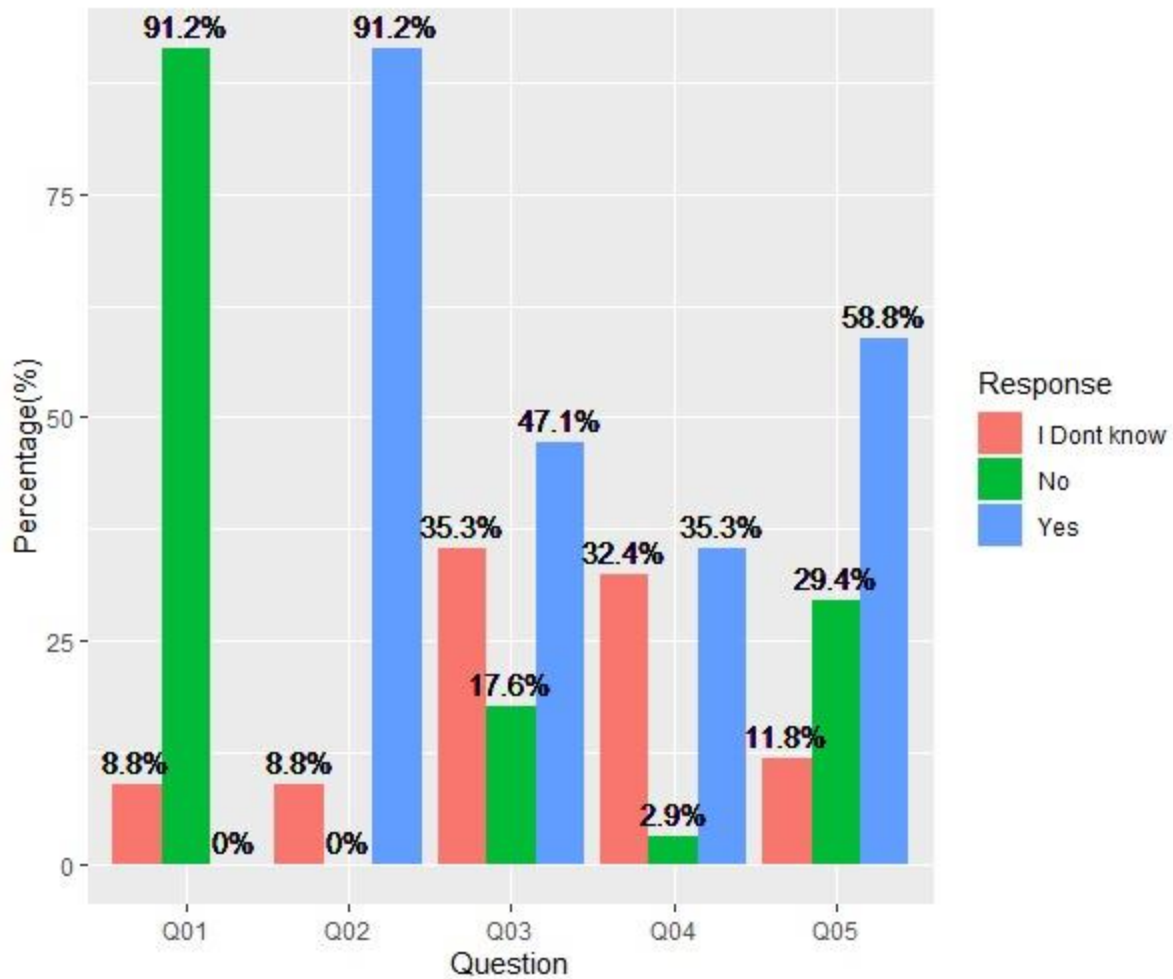
institutions that offer Accreditation services to ISO/IEC 17020:2012 are easily accessible. Lastly, it was notable that 50% of responses were aware of other institutions that were accredited in Africa.

**Table 4-3:** *Inspection bodies having necessary inspection procedures which are identified, developed, documented, and implemented (n=34)*

Survey Question		Frequency	Per cent
Has a Quality Management system in your institution	I do not know	6	17.6
	No	10	29.4
	Yes	18	52.9
The institution has a Quality Manual	I do not know	4	11.8
	No	10	29.4
	Yes	20	58.8
Institutions have documented inspection procedures	No	1	2.9
	Yes	33	97.1

Table 4-3 shows that 52.9% responded that their institution had a quality management system, 29.4% responded 'No', and 17.6% did not know whether their institutions had a quality management system. On their institutions having quality manuals, 58.8% responded in the affirmative, 11.8% did not know, and 29.4% responded that their institutions did not have quality manuals. 97.1%, as shown, responded that their institutions had documented inspection procedures, while 2.9% did not.

Among the questions asked, most responses were related to Q01 and Q02 related to not knowing of any inspection institution in Lusaka, Zambia, which is accredited to ISO/IEC 17020: 2012, but also responded in favour of being willing to be accredited as inspection organisations. The last responses were received from the question related to the institution's willingness to meet accreditation fees.



*Figure 4-3: Percentages of responses to questions on accreditation status and willingness*

**Key**

Q01: Institution accredited to ISO/IEC 17020:2012

Q02: Want to have an institution to be accredited to ISO/IEC 17020:2012

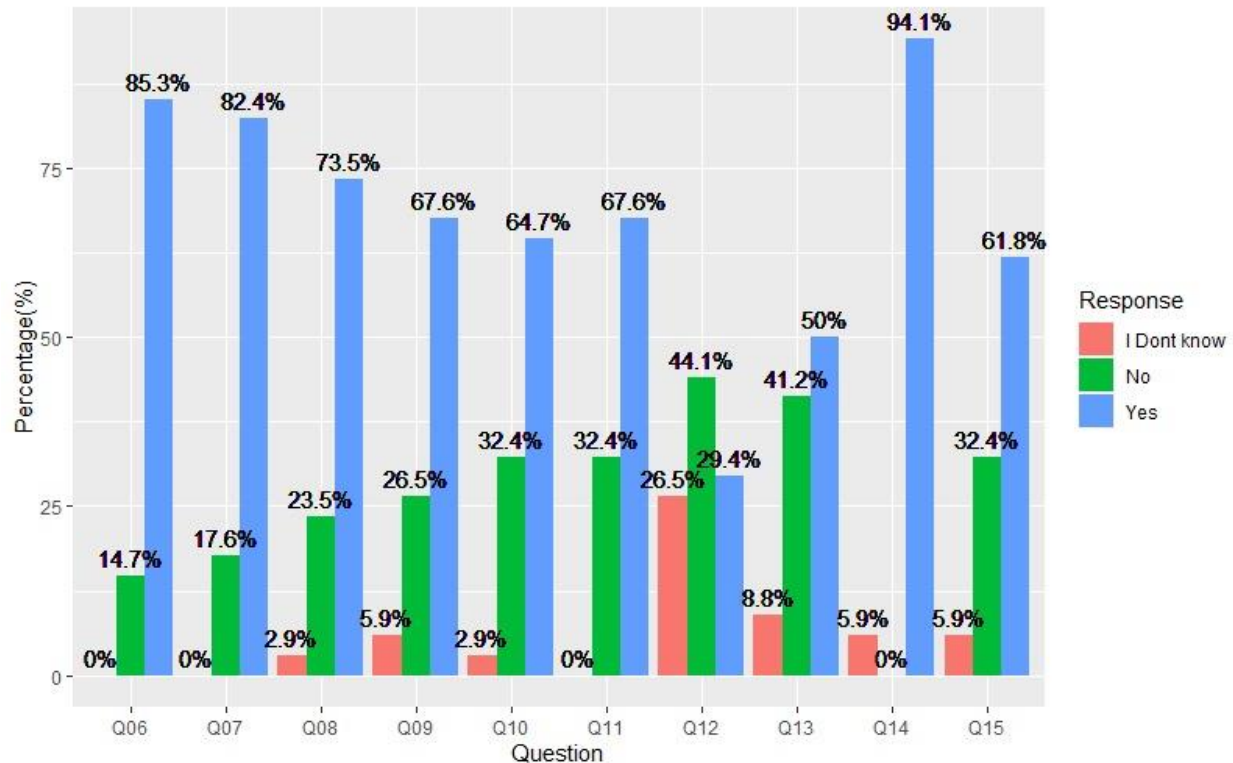
Q03: Able to afford application fees for accreditation

Q04: Institution willing to meet accreditation fees

Q05: Able to specify which areas your institution would want to seek accreditation

Figure 4-3 Above shows the percentages of responses of the three possible answers, 'Yes', 'No' and 'I do not know', regarding the accreditation status of inspection institutions and their willingness to be accredited to ISO/ IEC 17020: 2012

Among the questions asked, most of the responses were received on Q14, which is knowledge on how accreditation to ISO/IEC 17020:2012 can enhance quality assurance in inspection activities. The last responses were received on knowledge of how easily accessible institutions that offer accreditation to ISO/IEC 17020:2012 are.



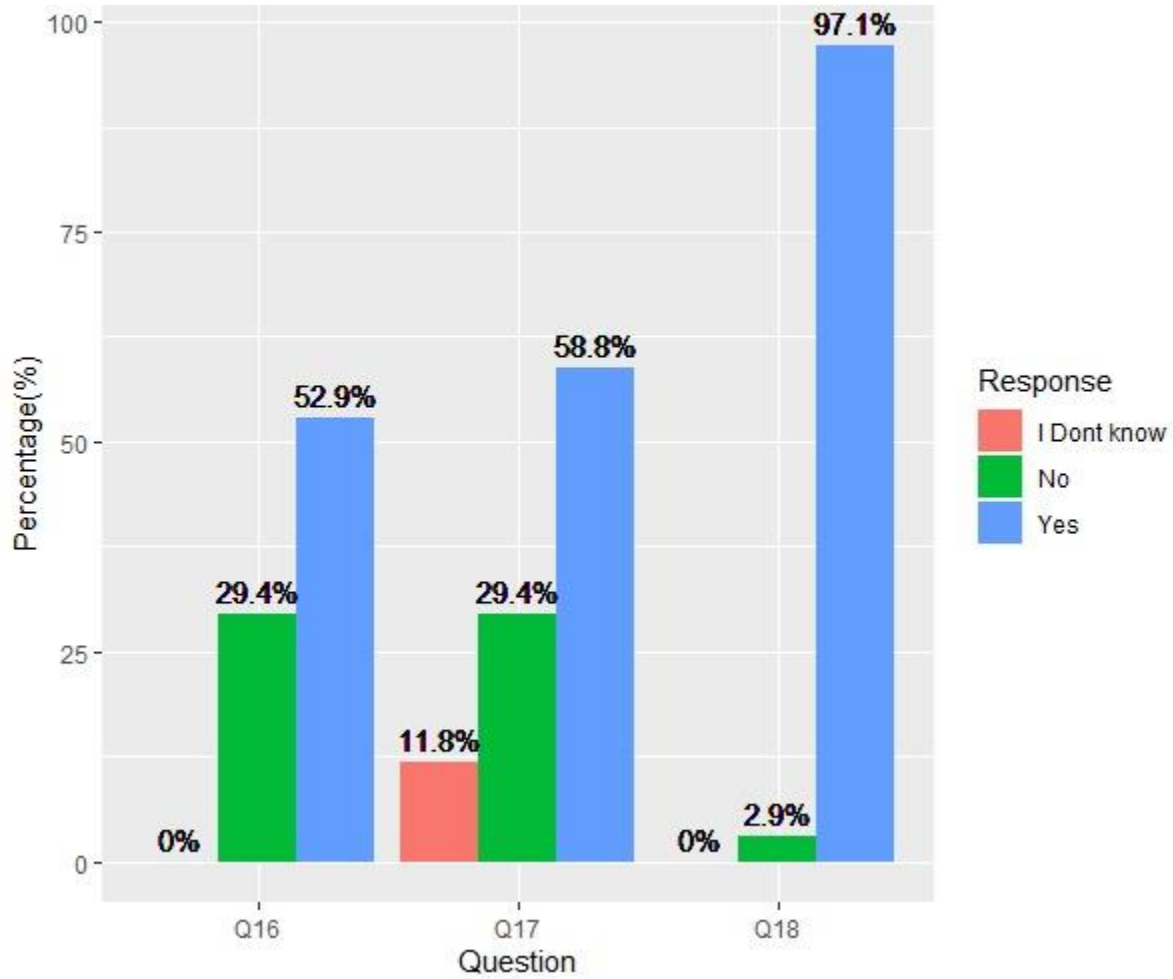
**Figure 4-4:** Percentages of responses to questions on the level of knowledge on ISO/IEC 17020:2012.

**Key**

- Q06: Heard about Accreditation Standards
- Q07: Heard of ISO/IEC 17020: 2012
- Q08: Understand what ISO/IEC 17020: 2012 entails
- Q09: Aware of accreditation procedures/mechanisms to ISO/IEC 17020:2012
- Q10: Understand the Benefits of being accredited to ISO/IEC 17020:2012
- Q11: Know any institution that offers Accreditation to ISO/ IEC 17020:2012
- Q12: Institutions that offer Accreditation to ISO/IEC 17020:2012 are easily accessible
- Q13: Know any institution in Africa that is accredited to ISO/IEC 17020:2012
- Q14: Accreditation to ISO/IEC 17020:2012 can enhance quality assurance in inspection activities

Q15: Understand the Accreditation Criteria for ISO/IEC 17020:2012

Figure 4-4 above shows the percentages of responses to the questions on the levels of knowledge of inspectors on ISO 17020.



*Figure 4-5: Percentages of responses to questions on having necessary inspections procedures*

**Key**

Q16: Have a quality management system in your institution

Q17: The institution has quality Manual

Q18: Institutions have documented inspection procedures

Figure 4-5 Above is the percentage distribution of responses across the questions of the inspection institution having necessary inspection procedures identified, developed, documented and implemented.

## **5. DISCUSSION AND STUDY LIMITATIONS**

This study aimed to evaluate the current accreditation mechanisms of the inspection bodies in Zambia to ISO/IEC 17020: 2012. Specifically, the study aimed to evaluate the accreditation status of inspection bodies in Lusaka and their willingness to be accredited to ISO/IEC 17020: 2012 and assess the levels of knowledge of the inspectors on ISO/IEC 17020: 2012. Further, the specific aim was to determine whether the inspection bodies have necessary inspection procedures identified, developed, documented, and implemented. A total of 34 inspectors were interviewed from two different inspection bodies, namely Zambia Compulsory Standard Agency (ZCSA) and Lusaka City Council (LCC).

### **5.1. Accreditation status of the inspection bodies and their willingness to be accredited to ISO/IEC 17020:2012**

In this study, 91.2% responded that their institutions were not accredited to ISO/IEC 17020:2012, while 8.8% did not know whether their institution was accredited to ISO/IEC 17020:2012. Regarding wanting their institution accredited to ISO/IEC 17020: 2012, 91.2% answered in the affirmative, while 8.8% responded that they did not know. This situation would lead to low confidence in the food safety system in the country. It has been observed that in countries where inspection bodies are not accredited with ISO/IEC 17020: 2012, food business operators do not have faith in the local inspection bodies “(Kafetzopoulos, 2014)”.

Other studies by Kang’ethe (2011) have suggested that lack of compliance with the implementation of food safety management, leading to low levels of conformance to food safety standards and regulations among the food handlers, resulted from a lack of confidence in the inspection bodies. The low compliance levels to food safety regulations imply that consuming foods produced by non-compliant food handlers still poses a health risk to the public “(Kang’ethe ,2011)”.

However, this does not agree with the findings and recommendations of a study undertaken in Cyprus, where even after the inspection regulator was accredited to ISO/IEC 17020: 2012, the food safety practices and knowledge of the food handlers did not change “(Charalambous, 2011)”.

The study also revealed that despite 47.1% confirming that their institutions can afford accreditation fees, 35.3% did not know whether their institution would afford application fees or not, while 17.6% responded that their institution could not afford application fees for accreditation fees.

Various studies conducted worldwide suggest that for accreditation to take place effectively, a needs assessment is necessary to identify which area of the institution may need international accreditation standards “(Rane, 2011)”. This accreditation has the potential to promote the organisation's reputation and, in the process, boost consumer confidence. This is in line with the findings of this research, where the inspectors could specify the specific scope of accreditation their institution needed to seek. 58.8% responded that they would specify the scope their institution would seek accreditation, such as fruit-flavoured drinks, purified water, and biscuits, while 29.4% could not specify, and 11.8% did not know whether they would specify the scope of accreditation their institution wanted to seek.

## **5.2. Levels of knowledge of ISO/IEC 17020: 2012 among the inspectors**

“Wood (1998)” believed that the inspection bodies' personnel must be qualified and have enough knowledge about the international standard to correct errors in the quality system and procedures if the institution is to be accredited to ISO/IEC 17020: 2012. This view is in line with the findings of this research, where 82.4% of the respondents have heard about ISO/IEC 17020: 2012, while only 17.6 have never heard about it. The study further revealed that 73.5% of the inspectors understand what ISO/IEC 17020:2012 is, while 23.5 need to learn what it is. On the question of being aware of the accreditation procedure of ISO/IEC 17020:2012, 67.6% were aware of the accreditation procedure, while 26.5% were unaware. The rest, which is 2.9%, did not know whether they were aware of the accreditation procedure of ISO/IEC 17020:2012 or not.

The ISO/IEC 17020:2012 accredited competency management system emphasises the provision of competent inspection services and understanding of the benefits thereof “(Umoh and Odoba, 1999).”

“Tomlins (2004)”, notes that if inspectors do not understand the quality benefits of ISO/IEC 17020: 2012 accreditation or do not follow proper protocol, a finished product will lack the anticipated quality. This agrees with the findings of this research, where 64.7% of the inspectors understood the benefits of an inspection institution being accredited to ISO/IEC 17020: 2012.

Furthermore, 94.1% affirmed that accreditation to ISO/IEC 17020: 2012 enhances quality assurance in inspection activities.

### **5.3. Inspection bodies have necessary inspection procedures which are identified, developed, documented, and implemented**

The study showed that 52.9% responded that their institution has a quality management system in place, 29.4% responded 'No', and 17.6% did not know whether their institutions had a quality management system. On their institutions having quality manuals, 58.8% responded in the affirmative, 11.8% did not know, and 29.4% responded that their institutions did not have quality manuals. Most participants (97.1%) responded that their institutions had documented inspection procedures, while 2.9% did not. This is in agreement with the finding of Rane (2011), who concluded that “document control is one of the most important requirements for ISO/IEC 17020: 2012 accreditation and important aspects of any management system; hence inspection bodies need to develop a quality manual which constitutes a quality policy, technical and generic system management standard operating procedures (SOPs) and work instructions”. “Dora-Ligana (2018)” further asserts that the SOPs essentially guide inspection and auditing practices and are essentially the heart of the implemented system, and a policy expressing full commitment to compliance with the requirements of the ISO/IEC 17020 standard has to be developed.

All food business operators are legally obliged to produce safe food; therefore, putting in place, implementing and maintaining a permanent procedure or procedures based on HACCP principles is key in ensuring that safe food is produced “(Tomlins, 2004)”. In addition, all food business operators, including primary producers, are legally obliged to implement good hygiene practices (GHP), which is why regulatory authorities are required by law to conduct inspections to check compliance.

According to “Charalambus (2011)”, standard operating procedures for inspection and auditing have to be developed and used for all inspection and auditing activities by the inspection body and records generated during inspection and auditing work are audited to determine compliance with SOPs.

### **5.4. Limitations of the Study**

This study had potential limitations. The lack of previous studies in this research area led to difficulty in the literature to be referenced. Additionally, the intended sample size was not

achieved as some respondents withdrew from the research. Lastly, the knowledge of ISO/IEC 17020: 2012 was based on what the respondents answered and not qualifications. Therefore, it would have been better if we sorted for documented evidence such as certificates of training on ISO/IEC 17020: 2012.

## **6. CONCLUSION AND RECOMMENDATION**

### **6.1 Conclusion**

The study aimed to establish the accreditation status of inspection bodies in Lusaka and their willingness to be accredited to ISO/IEC 17020:2012 and assess the levels of knowledge of the inspectors on ISO/IEC 17020:2012. Further, the study aimed to determine whether the inspection bodies have necessary inspection procedures identified, developed, documented, and implemented. The results from the study showed that the inspection bodies in Lusaka are not accredited to ISO/IEC 17020: 2012 despite being willing to be accredited to the international standard. The study further revealed that the inspectors had good levels of ISO/IEC 17020: 2012 knowledge; and that the inspection bodies have necessary inspection procedures which are identified, developed, documented, and implemented.

### **6.2 Recommendation**

The government food inspection bodies in Zambia should train their personnel on implementing ISO/IEC 17020:2012 and seek accreditation to ISO/IEC 17020: 2012. This will promote confidence in bodies performing food inspections in Zambia. Moreover, accreditation to this standard will ensure that inspection bodies carry out their inspection activities in a competent, consistent and impartial manner, which allows them to use their professional judgments in the execution of their duties to enhance customer satisfaction.

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## **8. APPENDICES**

## 8.1. Appendix 1: Data collection tools



UNIVERSITY OF ZAMBIA

SCHOOL OF VETERINARY MEDICINE

Questionnaire- Survey

Serial No.....

### EVALUATION OF CURRENT ACCREDITATION MECHANISMS OF THE INSPECTION BODIES TO ISO 17020

Principal Research: Esther Makeche

#### Section A: Background information

Date of interview \_\_\_\_\_

Name of interviewer: \_\_\_\_\_

District: \_\_\_\_\_

Location \_\_\_\_\_

Name of the Institution: \_\_\_\_\_

Respondents first name: \_\_\_\_\_ Last name \_\_\_\_\_

i. Age of the respondent: \_\_\_\_\_ (years)

ii. Sex: Male    Female (TICK APPLICABLE BOX)

**SECTION B**

1. Is your institution accredited with ISO 17020?

Yes,    No,    I do not know.  
       

2. Does your institution carry out approved inspection activities?

Yes,    No,    I do not know.  
       

3. Would you want your institution/ ministry/ department to be accredited with ISO 17020?

Yes,    No,    I do not know.  
       

4. Are you able to afford the application fees for the Accreditation of your Ministry/Department/ Institution?

Yes    No    I do not know (specify mechanisms)  
       

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5. Would your Institution/Department/ Ministry be willing to meet Accreditation fees?

Yes    No    I do not know.  
       

6. Are you able to specify which areas your institution would want to seek accreditation in?

Yes, No, I don't know.

**SECTION C**

7. Have you heard about Accreditation standards?

Yes,      No,      I don't know.  
           

8. Have you heard of ISO 17020?

Yes,              No,      I don't know.  
           

9. Do you understand what ISO 17020 entails?

Yes,      No,      I don't know.  
           

10. Are you aware of the accreditation procedures/mechanisms of ISO 17020?

Yes,      No,      I don't know.  
           

11. Do you understand the benefits of being Accredited with ISO 17020?

Yes      No      I don't know  
           

12. Do you know any institutions that offer Accreditation to ISO 17020?

Yes      No      I don't know  
           

13. In your view, are the institutions that offer Accreditation to ISO 17020 easily accessible?

Yes      No      I don't know

14. Do you know of any institutions in Africa that are accredited with ISO 17020?

Yes      No      I don't know  
       

15. Do you think Accreditation to ISO 17020 can enhance quality assurance in your inspection activities?

Yes      No      I don't know  
       

16. Do you understand the Accreditation criteria for ISO 17020?

Yes      No      I don't know  
       

#### **SECTION D**

17. Do you have a Quality Management system in your institution/department for your operations? If Yes, please State

Yes      No      I don't know  
       

18. Does your Institution/ Department/ Ministry have a Quality Manual?

Yes      No      I don't know  
       

19. Does your institution have documented inspection procedures?

Yes      No      I don't know

## 8.2. Appendix 2- Map of Zambia



Source: <https://zambiareports.com/wp-content/uploads/2015/11/Zambian-Map.jpg>

## 8.3. Appendix 3 Approval letter for the Concept Note



**THE UNIVERSITY OF ZAMBIA  
SCHOOL OF VETERINARY MEDICINE  
OFFICE OF THE ASSISTANT DEAN (POSTGRADUATE)**

Telephone: 293727  
Telegrams: UNZA LUSAKA  
Telex: UNZALU ZA 44370  
Fax: 293727/253952  
School Fax: 29372  
Vet. Clinic Telephone: 291515

P. O. Box 32379  
Lusaka, Zambia

Your Ref:

Our Ref:

---

22<sup>nd</sup> February 2022

Ms. Esther Makeche  
Department of Disease Control  
School of Veterinary Medicine  
P. O. Box 32379  
LUSAKA

Dear Ms. Makeche

**RE: APPROVAL OF RESEARCH PROPOSAL**

At the meeting of the School Board of Graduate Studies held on 17<sup>th</sup> February, 2022, your research proposal entitled: ***“Evaluation of the Current Accreditation Mechanisms of the Inspection Bodies to Iso 17020”*** was tabled and discussed. I am therefore, pleased to inform you that the research proposal was subsequently approved by the Board.

On behalf of the Board, I wish you success as you apply for ethical approval and carry on with your research activities.

Yours sincerely

Dr. Chisoni Mumba  
**ASSISTANT DEAN (PG), SCHOOL OF VETERINARY MEDICINE**

*Dean, School of Veterinary Medicine  
Head, Disease Control  
File*

## 8.4. Appendix 4 Ethics Approval letter



Plot No. 272, Cnr Olive Tree Meanwood Road,  
Meanwood Ibx  
Lusaka - Zambia  
Tel: +260 955 155 633  
+260 955 155 634  
Cell: +260 977 493 220  
Email: eresconverge@yahoo.co.uk

I.R.B. No. 00005948  
F.W.A. No. 00011697

14<sup>th</sup> March, 2023.

**Ref. No. 2023-Feb-011**

The Principal Investigator  
Ms Esther Makeche  
Department of Disease Control  
School of Veterinary Medicine  
P. O. Box 32379  
**LUSAKA.**

Dear Ms Makeche

**RE: EVALUATION OF THE CURRENT ACCREDITATION MECHANISMS OF THE INSPECTION BODIES TO ISO 17020**

Reference is made to your protocol submission. The IRB resolved to approve this study and your participation as Principal Investigator for a period of one year.

Review Type	Ordinary	Approval No. <b>2023-Feb-011</b>
Approval and Expiry Date	Approval Date: 14 <sup>th</sup> March, 2023	Expiry Date: 13 <sup>th</sup> March, 2024
Protocol Version and Date	Version - Nil.	13 <sup>th</sup> March, 2024
Information Sheet, Consent Forms and Dates	• English.	13 <sup>th</sup> March, 2024
Consent form ID and Date	Version - Nil	13 <sup>th</sup> March, 2024
Recruitment Materials	Nil	13 <sup>th</sup> March, 2024
Other Study Documents	Lab based	13 <sup>th</sup> March, 2024
Number of participants approved for study	40	13 <sup>th</sup> March, 2024