FACTORS FOR MAIZE VALUE CHAIN SUSTAINABILITY IN LARGE SCALE AGRICULTURE

THE CASE OF IRINGA DISTRICT

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BY

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A Dissertation submitted in partial Fulfillment of the Requirements for the Degree of Master of Science in Procurement and Supply Chain Management (PSCM) of Mzumbe University.

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CERTIFICATION

The undersigned certifies that he has read and hereby recommends for acceptance by the Mzumbe University a dissertation entitled "**Factors for Maize Value Chain Sustainability in Large Scale Agriculture**" in partial fulfillment of the requirements for the degree of Master of Procurement and Supply Chain Management (PSCM) of the Mzumbe University.

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DECLARATION AND COPYRIGHT

I Heriamen Manase declare that, this Dissertation is my original work and that it has not been presented and will not be presented to any other University for a similar or any other degree award. All citations, references and borrowed ideas have been acknowledged.

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Date :_____

ACKNOWLEDGEMENTS

This work could not be successfully accomplished if it could not be for the contributions of several individuals. It is not easy to mention all of them in this single page. However, I am indebted to provide my sincere thanks to my research supervisor Dr. Geraldine Arbogast for his tireless efforts and assistance in making this study worth.

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DEDICATION

This research report is dedicated to my lovely family and all who helped me on this dissertation. Not forgetting my Supervisor Dr. Rashel Arbogast for her guidance and criticisms during the entire dissertation work**.**

ABBREVIATIONS

GDP	-	Gross Domestic Product
CP	-	Country Profile
UNIDO	-	United Nation Industrial Development Organization
ILO	-	International Labour Organization
USA	-	United State of America

ABSTRACT

The study was conducted to assess factors for maize value chain sustainability in Tanzania with Iringa District as selected case for the study to generate data to fill the gap. The study was guided mainly by three specific objectives which intended to show the influencing factors for maize value chain sustainability; role of actors in the process; as well as challenges encountered in the process. It was conducted using both explanatory and exploratory designs whereas the first objective was tackled using explanatory design to perform causality testing; while the second and third specific objectives were analyzed using explorative design. Data were collected from five groups as actors in the process using the questionnaires whereas the collected information were assembled all together and computed in SPSS version 23.0 for analysis to be performed and generated. Results obtained that the first objective on factors influencing the sustainability of the maize value chain all five suggested factors as hypotheses were all found to be positive and significant statistically at .000 level. Actors involved were shown and described with their roles in maize value chain activity whereas farmers are tasked with the duty of producing, harvesting and packing the produce; processors process the produce to add value; the government creates suitable environment for the activity to take place and ensure sustainability; wholesalers and retailers are suppliers of the produce to the market; final consumers are buyers of the produce for consumption. Moreover, the activity is also encounters severe challenge which sometimes shake its sustainability. In that account, the study further recommends that the observed challenges are severe since they threat the sustainability of the activity such that some participants are influenced to quit and abandon the activity to perform other works. Therefore, the government and several stakeholders within are highly advised to intervene to generate the required support for the sustainability of the activities.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURE

CHAPTER ONE

GENERAL STUDY OVERVIEW

1.1 Introduction

The chapter shows the overview of the study from the design and formulation stage to the actual issue to be inquired for the purpose of filling the knowledge gap to enrich the body of literature on procurement and supply chain in Tanzanian context. The overview is complemented with sections within the chapter such as background to the problem, statement of the problem, research objectives and questions guiding the study, relevance of the study and the way the study is arranged and presented from the beginning to the end. In that case, the chapter constitutes the following pertaining to the overview.

1.2 Background to the problem

Value chain refers to the set of activities performed by the business entity(s) for the purpose of ensuring and guaranteeing the delivery of valuable product(s) and or service(s) in the market to carter for needs and wants of the consumers (Kaplinsky& Morris, 2001). The concept is essential in business as it denotes sequence of points and or nodes which product(s) and or service(s) pass through in terms of value addition until it reaches the final consumer while observing the satisfaction of the needs and wants of the customers in the market (Mitchell, Coles and Keane, 2009). The process entails the backward and forward integration sometimes practices which are all relevant in ensuring adequate delivery of the required product(s) and or service(s) in the market (Gereffi, 1994).

In that note, it involves several actors depending on the business involved and the type of product(s) and service(s) needs to be delivered in the respective market (Microlinks, 2009). There can be suppliers, producers and manufacturers, middlemen and others depending on the business and the required product(s) and or service(s). The process entails adequate delivery of the product(s) and or service(s) in the market due to the fact

that there is already existing information on the type of product(s) and or service(s) required and the customers to serve; whereas the whole process of processing the commodities in terms of value addition seeks to fit with the marketing requirements pertaining to the existing information on the needs and wants of the customers (Martin, 1995).

However, the value chain is relevant and adequate in practice as long as it is sustainable to all actors involved in the process as well as the market itself which is supplied as the targeted entity (Ghemawat, 2002). This is due to the fact that value chain consist activities which are business oriented whereas for the actors involved whether individuals, firms, organizations, companies, government and others; profitability is very important because it is motivation in itself as the practice is worthy practiced (Gurria, 2012). Apart from that, as for the market product(s) and or service(s) accessibility and availability as affordable and relevant prices which are stable is very important which ensures high sustainability of both parties to the business; as well as actors involved (Matthews, 2013).

Tanzania in particular as a state constitutes agriculture as the backbone of the economy consisting of more than 75% of the population engaging in the practice with significant contribution to the country's Gross Domestic Product (GDP) as well as the acquisition of foreign currencies in the country and the economy (CP, 2016). The country constitute massive arable land for agriculture whereas there are several such practices within for food security as well as for export. The country produces variety of food crops and cash crops. Among the produced and cultivated crops to a great extent are the maize which is cultivated in more than 3000 tons (Gaddis, 2016).

The maize products are essential and highly demanded in the market to the extent that they are important and key to the customers for of various categories for consumption both in urban and rural settings such as individuals, business entities such as hotels, motels, restaurants, small food vendors; and others (Heale& Wong, 2010). Since that is the case, maize production in Tanzania until it reaches the market constitute value chain

with key actors in the process such as farmers who are also sometimes supplied with certain farming inputs by the government such as fertilizers, seeds and others. From farmers value addition is done mostly in first stages whereas the leaves are removed and grains are packed in a sack (Harper, 2014).

Also, the other actors are middlemen as suppliers and transporters of the sacks to the market to a great extent than farmers and others from the production sites and or areas; whereas in most cases they transport the sacks to the market in the form as prepared by farmers (Wairagala, 2014). The other category of actors after reaching the market are the wholesalers which they add the value of the commodity by transforming them into flours, and others still sell them as provided and received from the middlemen depending on the needs of the consumers as some buy the product in grain form and other in flour form. In this stage, there is value addition on transforming the packed grains into the flour (Heale& Wong, (2010).

The other category of actors is retailers as those purchasing from wholesalers and sell the product in retail form. In this category of actors there are more value addition as some sell the flour which they process from the grains and others bought as they are from wholesalers; others sell food generated out of the flour such as stiff porridge and others (Skinner, 2015). The final actor are the consumers serving as several categories for different purposes and usage for the interest of the consumer in personal and business reasons. Consumers add several other additions such as preparation of food products and others whereas maize products are a mixture of other products to produce certain other products (Skinner, 2015).

Since that is the case, sustainability as an important component in value chain is highly questionable in maize value chain in Tanzania due to the fact that Khaidukov and Tasalov (2016) suggests that sustainability to be well measured in a setting particularly in food production must consider three key aspects as determinants and measurements which are economic development implying the resources used and available for the practice and financial sustainability among all actors involved and the respective market

expected to be served. Also, the other concern is the social development which imply the practice being attractive and able to deliver goodies pertaining to the needs and wants of the actors in personal lives and practices; as well as environmental protection which is a concern on the sustainability since the practice involves the environment to a great scale.

In that note, there is a great concern to envisage an inquiry and or study for that matter since the three concerns have been and still are a challenge due to the fact that agriculture in general and totality in the Tanzania due to the fact that poverty has been escalating in several parts practicing agriculture including maize production; also, finance in the sector as well as farming education is still a major crisis and challenge as many still constitute subsistence farmers (Gaddis, 2016). Besides that, agriculture technology is still very poor to the extent that farmers still depend on nature for planting and harvesting as once the weather behaves contrary to their expectations they incur loss (CP, 2016). Therefore, it is necessary to assess the role of maize value chain sustainability in Tanzania.

1.3 Statement of the problem

Value chain is an important component in business performance among firms and several other actors in the business as it promotes service quality because it ensures that the supply of good(s) and or service(s) in the market are in line and correspond with the needs and wants of the customers (Kaplinsky& Morris, 2001). Besides that, value chain fosters innovation and creativity among entrepreneurs, entities and others in handling and responding to the entire process to carter for the ultimate goals and objectives (Ghemawat, 2002). Despite that, value chain is highly effective and efficient in the economy and among actors involved and the respective market(s) if it adheres to sustainability principles through ensuring economic development among all actors and sectors involved in the territory, social development and environmental protection (Kovel, 2007).

However, with maize value chain in Tanzania; there are several concerns on the agriculture sector which affect the entire value chain pertaining to sustainability such as paucity of financing of the sector, extreme poverty among farmers, use of poor farming methods and techniques, limited and extremely low technology in terms of usage and application, and others (Gaddis, 2016); which affect economic development, social development, environmental protection as adequate and reliable measures of sustainability in maize value chain (Harper, 2014).

The situation still persists to a great extent which becomes an issue of concern because the activity serves many in the country besides the actors on personal gains alone; but constitutes significant contribution to the economy as well as the societal need since the produce and or product is highly demanded as food and several other needs. The concern is that once the problem keep on persisting without response may discourage actors and decide to engage in other activities leading to another crisis which is more severe. In that account, the study seeks to assess the factors formaize value chain sustainability in Tanzania.

1.4 Research Objectives

1.4.1 General study objective

The general study objective was to assess the role of actors in maize value chain sustainability in Tanzania.

1.4.2 Specific objectives

i. To determine roles of different actors in maize value chain sustainability in Iringa.

ii. To determine factors for maize value chain sustainability in Iringa.

iii. To determine challenges for maize value chain sustainability in Iringa.

1.5 Research Questions

i. What are roles of different actors in maize value chain sustainability in Iringa?
ii. What are factors for maize value chain sustainability in Iringa?
iii. What are challenges for maize value chain sustainability in Iringa?

1.6 Significance of the study

The study is relevant in the sense that it shows and point out the existing roles of actors in maize value chain sustainability in Tanzania and set ground rules for policy making, formulation and execution pertaining to the existing challenges and ways to overcome them including in other sectors of the economy. The study also shows the contribution and influence brought about by the economic development, social development and environmental protection as concerns pertaining to maize value chain sustainability. Despite that, the study stands as the strong foundational base for the pursuance of other inquiries in the future as an avenue for further gaps or as a point of reference. Furthermore, the study successfully fosters the accomplishment of the degree program pursued since it is a partial requirement to be fulfilled.

1.7 Organization of the study

The study was arranged and presented in five respective chapters whereas the first and foremost consisted of the overview of the inquiry. The second one presented the reviews of other scholars in relation to the study based on theoretical and empirical facts pertaining to the study. The third chapter presented the methodology the study applied to foster the process of knowledge creation and the entire feeling of the relevant knowledge gap. The fourth chapter presented the study findings as results from the field, the entire analysis and the discussion of the study findings. The fifth and the last chapter presented the summary, conclusion and the recommendations of the study.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The chapter presents the reviews of several works from various scholars based on theoretical and empirical reviews which shows the contribution of others on perceptions of scholars on key concepts used in the study. On top of that, the chapter reveals the existing gaps in the literature on the justification to pursue the study. Besides that, the conceptual framework is presented to show the variables of the study and their relevant hypotheses. With that, the chapter consists the following:

2.2 Definition of terms

2.2.1 Value chain

Value chain refers to the sequence of nodes the product(s) and or service(s) pass through in terms of value addition to reach the required market for consumption (Gereffi, 1994). Value chain is an important aspect in business and the economy due to the fact that it entails the contribution of multiple actors in the respective venture and their benefits which fosters positive outcomes to the economy, the society, the market, the government and the country as a whole (Gereffi, 1994).

2.2.2 Sustainability

This is situation and state whereas a certain undertaking whether economic, political, cultural or social is deemed to be effective and efficient for long term basis with no possibility of decay and destruction unless being subject to situation beyond control such as natural calamities, wars and others of that kind (Adams &Jeanrenaud, 2008).

2.2.3 Actors

Actors constitutes members and participants in an activity as a process in direct form and indirect form though in totality they have influence in the commencement and achievement of the expected goal pertaining to the activity (Wilson & Luis, 2015). Actors can be several and different depending on the activity and issue performed and conducted. However, in maize value chain actors imply all participants in the entire process of the maize product from the production site all the way to the final consumer(s) and vice versa (Dalipagic & Elepu (2014).

2.3 Theoretical reviews

The section constitute theories in relation to the study concepts to provide several provisions and perceptions of scholars on the concepts in relation to the study. Therefore, they consist the following:

2.3.1 Theories on value chain

2.3.1.1 Service profit chain

This is a theory and concept in business management propagated by James Heskett in 1994. The theory provides that value chain is a service provision activity which must always consider to achieve three basic things and components to carter for efficiency and effectiveness such as employee satisfaction, customer loyalty and profitability (Heskett, 1997). The concern of the theory is that value chain involve several actors with distinct from each other and with different expectations in the end to the extent that they all need to be well satisfied in the end for efficiency and effectiveness (Sasser, 1997). This is due to the fact that first customers in the market which need to be served with product(s) and or service(s) as per their needs, interests and aspirations; must be well served to the extent that once the product and or service(s) reach at their destinations must be well satisfied which becomes a market to serve for the business.

However, for suppliers and facilitators in the value chain process are business entities such as firms, companies and organizations which strive for profit making with employees hired to perform (Sasser, 1997). In that note, for performance to be well and efficient; employees as manpower expected to perform must be satisfied through motivation and rewarding system through several means including attractive remuneration packages, self-actualization and others. Finally, as for businesses in terms of firms and organization operating the market should be adequate with stable conditions set by the government to guarantee profit generation and maximization to the extent once all actors are satisfied then value chain becomes successful and efficient because sustainability is well realized in terms of economic development, social development and environmental protection (Heskett, 1997).

The theory is relevant to the study in a manner that it is effective in addressing the study and the propounding weaknesses in the study area and the context on the persisting situation pertaining to maize value chain in Tanzania. On top of that, the theory suggests solutions to the on-going situation that actors as stakeholders and the government must make sure that all actors involved and the market which expects to be well served by the actors in value chain are all satisfied and well catered for beginning with the farmers, middlemen all the way to the final consumers as customers.

2.3.1.2 Value grid

This is a theory on value chain proposed by Pil and Holweg (2006) as a critique to the notion of value chain. The theory criticizes the notion on the practice of value chain as linear and straight forward procedure and practice. This is due to the fact that value chain constitute business practice among companies, firms, organizations and entities in the market to carter for their needs and wants in terms of success, growth and profit to the extent that the process cannot be linear due to the fact that actors are interest driven as they strategize to maximize gains at affordable costs while satisfy the demands of the market.

The theory suggests that companies and firms as entities in value chain practice apply the value grid model since it is all about who gets what, when, where and how. The concern is that value chain at the moment is a business venture and opportunity to the extent each and every actor in the process has different interest which are far from each other to the extent that the practice cannot be linear in anyhow (Pil&Holweg, 2006). The theory is relevant to the study because it address the reality of the matter including the actual happening in the study context because the concern which has brought about the need to envisage the inquiry are related to the practices and expected gains which the theory has addressed.

2.4 Empirical studies

2.4.1 Factors for value chain

Riisgaard and Ponte (2014) envisage an inquiry on poor value chain developments and practices in several places around the globe. The study emphasized on agricultural value chain practices which have been and still take place in various developing countries in Africa, Asia and elsewhere in the world specifically dealing with the moving of agricultural products from farms to the final consumers in the market. This is a United Nations publications under UNIDO though it reflects several developing countries contexts in various places in the world. The methodology which was used to conduct the study was mainly comparative as various comparisons were made and established to justify the focus of the inquiry.

Findings of the study showed that most of the practices of value chain in developing countries are crude and mostly unfair which makes the practices not sustainable. This is due to the fact that with limited understanding among many farmers and lack of strong economic base; most have been subjected to unfair trades and treatments in the sense that most middlemen are the ones enjoying the benefits of value chain as they purchase the products at extremely low costs from the farmers whereas some products have been added value; and take to the market at a higher price which enables them to make super

profits at the expense of the farmers. Therefore, relations in the trade have always been unfair to the farmers as they produce a lot in developing countries but they still remain poor, primitive and backward.

This signifies a gap in Tanzanian context pertaining to maize value chain because the described outcomes is the actual existing situation in Tanzania which hinder sustainability in the practice. Therefore, an inquiry needs to be envisaged to assess the role of actors in maize value chain sustainability in Tanzania with specific focus on environmental factors as propagated by Khaidukov and Tasalov (2016).

Herr and Muzira (2014) conducted an inquiry on the development of value chain as a decent work in developing countries specifically in agriculture products because most of the countries in Africa for instance with arable land; most of the people are engaged in agriculture in small scale. Therefore, it was thought to be useful area to establish a decent practice for people to engage and enable earning their daily living and growth as practitioners. The study focused on several developing countries in Africa since it is a report of International Labour Organization (ILO). The methodology used and applied were both qualitative through narrative approach and the comparative approach as well in making reference from several countries in the study context.

Results of the study revealed that development of value chain has been significant on certain actors especially those with financial capability and muscles to access crops in the production areas from farmers and transport them to the markets. Such group of actors have benefited and made fortune through value chain works and practices. However, farmers on the other hand have been marginalized and are highly exploited and oppressed by actors with financial muscles in their relations in value chain works and practices. This has brought about tensions in some places whereas farmers have been refusing to cultivate and sometimes sell their products to the middle men which has created chaos in some places in one way or the other.

This is a gap in Tanzanian context pertaining to maize value chain sustainability because the described situation is the actual reality taking place in the area as farmers are highly oppressed and treated unfairly by middlemen because of their ignorance and lack of financial capability to take their products into the market by themselves to the extent that they forced to be subjected to unfair terms which keeps on marginalizing them as days are moving. This has been a hindrance towards sustainability on maize value chain in Tanzania. Therefore, an inquiry is envisaged to assess the role of actors in maize value chain sustainability in Tanzania with specific reference to the environmental factors as provided by Khaidukov and Tasalov (2016).

2.4.2 Actors in maize value chain

Shepherd (2016) envisage an inquiry on value chain profitability among small scale farmers in Netherland. The study was conducted in the context of the Dutch environment and setups whereas the appropriate methodology applied was narrative approach which signifies that the approach was qualitative which showed ways which profitability of value chain benefits small farmers. Results of the study were clear that value chain benefits each and every actors involved including small farmers as most were able to advance to large scale farmers and the business as a whole. The most important venture which spearheaded the growth of the small scale farmers is the serious emphasis by the government on sustainability measures through direct interventions and subsidies to the farmers for the greater good of the practices.

This entails massive gap in Tanzanian context because most of the maize farmers as important and key actors in maize value chain are relatively very small to the extent that despite their engagement and involvement direct in maize value chain; the practice and activity has not been profitable for farmers in Tanzania including in Iringa as the relevant case study for the inquiry which has brought about an inquiry to be envisaged pertaining to sustainability measures. Since that is the concern, the study seeks to assess the role of maize value chain sustainability in Tanzania with reference to the environmental factors as indicated by Khaidukov and Tasalov (2016).

Mitchell, Coles and Keane (2009) conducted a study on the significance of each and every actor involved in commodity value chain process in poverty reduction strategy in Latin America. The study was waged in Mexico as the publishing centre though the scope covered the entire Latin American context comprising countries of Mexico, Guatemala, Honduras, Brazil and Chile. The study used comparative approach as the study methodology. Results indicated that value chain activities in such contexts have been and still are useful in poverty reduction since they have been and still are source of employment and engagement in several income generating activities.

This is due to the fact that they involve multiple sources of actors since they constitute several requirements which may be difficult to be realized by a single source. The activities are well embraced in Latin America as a result of the initiatives arise in eradicating poverty. This signifies a gap to be envisaged in Tanzania since there are several activities with value chain initiatives including maize such that it is important for the works to be sustainable which entails for an inquiry to be conducted to assess factors influencing maize value chain sustainability in Tanzania.

2.4.3 Challenges in agricultural value chain

Pankaj (2002) conducted a study on the issues which may be useful and relevant as setbacks for the value chain initiatives and or activities in an economy among several actors in the process. The study was conducted in United States of America (USA) in Harvard University and recorded as the entity's review. Cross sectional survey design was used as the study methodology. Findings showed that value chain activities all over the globe with variations in contexts are faced with setbacks as challenges which are mainly attributed by the competition and the business strategies involved.

This is evident since the activities are business oriented such that the markets usually all over the globe are highly competitive which affect price setting and other concerns which makes the business difficult. Apart from that, the other concern is business strategies employed that in most developing states most of the actors involved are

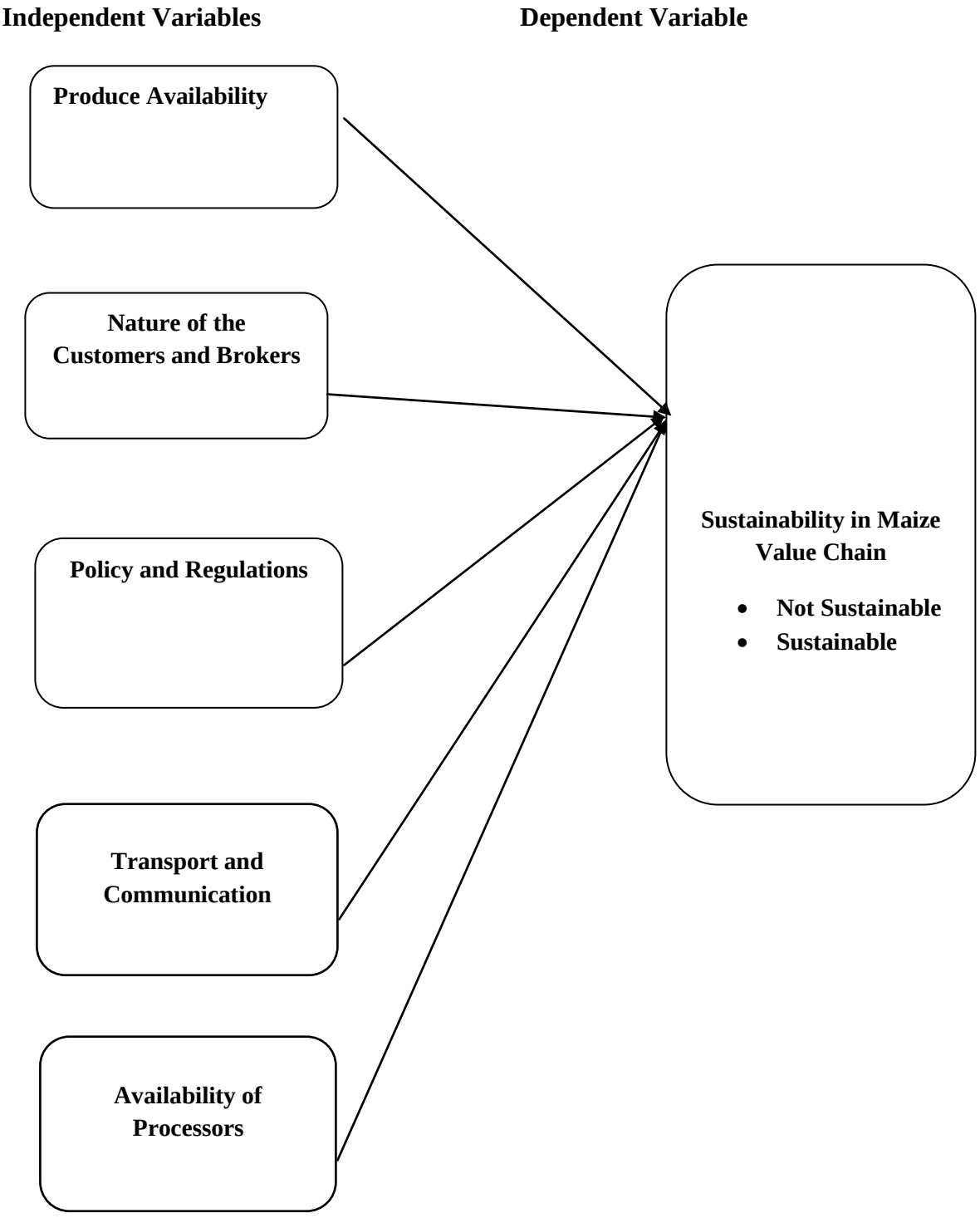
limited with skills and knowledge on the activities to develop and design adequate business strategies which are worthy to prosper the entities further. In that regard, challenges tend to appear along that line and or relationship for that matter.

This entails a gap to be pursued in Tanzania since the activity as value chain in several ventures including maize is faced with lots of challenges which are necessary to be generated from the actors concerned. Therefore, it is relevant to envisage an inquiry to determine the challenges being encountered in the entire maize value chain in Tanzania.

2.5 Conceptual framework

The conceptual framework entails the mechanism to show the independent and dependent variables of the study which is undertaken and the way the variables influence each other (Rodman, 1980). The framework shows independent variables based on factors influencing maize value chain and the dependent variable. The variables for the study are the proposed factors for maize value chain sustainability in Tanzania. With that, they were stated in the framework depicted in figure 1.

Figure 2:1: Conceptual Framework



2.5.1 Study variables

The study consisted of three main variables as study predictors which are expected to be envisaged to verify their relationships with maize value chain sustainability. The variables are stated and well elaborated below.

2.5.1.1 Produce availability

The fact and the reality on the ground is that the produces are highly available in the region (Iringa) as well as many other places in the country since the commodity is in high demand both in rural and urban settings (Heale& Wong, 2010). The produce consumption is higher among people all over the country which ensures the sustainability of the maize value chain. Therefore, the produces availability is well assured in the region.

2.5.1.2 Nature of customers and brokers

Customers are plenty and exist since the commodity is in high demand for consumption as food to a great extent; as well for industrial purposes in production of certain products including beverages (Barbier, 2006). The consumption of the product is very high especially as food in both rural and urban setting in Tanzania. This entails the fact that the product is available and well consumed to a great extent in all corners and areas of the country which makes it useful for value chain sustainability in relation to the inquiry (Suleiman, 2013). Besides that, brokers as actors for business are highly essential in promoting the business since they gain through the chain which ensure the sustainability of maize value chain

2.5.1.3Policy and regulations

Maize as the product is considered legal and accepted product to be produced for consumption as food for people and animals; as well feeding the industries using the produce for various production processes (Smith & Reese, 1998). The maize value chain

process is legally recognized and accepted such that the government has its own way of getting its share on the chain which fosters sustainability of the process (Allen, 2007).

2.5.1.4 Transport and communication

The means of transportation and communication in their totality are okay since communication is not a problem since means are essential for instance use of cellphones for direct verbal communication and conduct of transactions using mobile phone services (Skinner, 2015). Transportation is by road whereas the location of the region is easier to reach various market destinations from the area which ensures the effectiveness of the maize value chain.

2.5.1.5 Availability of processors

The produces after being harvested they require to be processed for packaging to be effective and efficient for business purpose and transportation to the markets and other areas apart from the production sites (Gaddis, 2016). With that, processors are available they are mainly members within the farmers communities such as families and others which guarantees sustainability of the maize value chain.

2.5.2 Study hypotheses

The study focused on the role of actors in maize value chain sustainability in Tanzania. The core assumption of the study was that actors' assurance on sustainability practices ensures maize value chain sustainability. With that, three hypotheses were formulated which were produce availability, nature of customers and brokers, policy and regulations, transport and communication; and availability processors which are stated as follows:

H1. Produce availability ensures maize value chain sustainability in Tanzania.

H2. Nature of customers and brokers ensures maize value chain sustainability in Tanzania.

H3. Policy and regulations ensures maize value chain sustainability in Tanzania.

H4. Transport and communication ensures maize value chain sustainability in Tanzania.

H5. Availability of processors ensures maize value chain sustainability in Tanzania.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

The chapter shows the appropriate study methodology which was used to undertake the study from the beginning to the end. The methodology consisted of several steps and or measures which were applied by the researcher to ensure the completion of the process of filling the study gap. Therefore, it consisted of the following:

3.2 Area of the study

The selected study area was Iringa District due to the fact is among the areas in the central which are central and key in maize production to the extent that it serves as effective and efficient in assessing maize value chain sustainability which is useful in asserting the generalization; as much of the settings resembles several other places in the country undertaking maize production.

3.3 Research paradigm

Research paradigm refers to the philosophical views and perspectives pertaining to the pursuance of scientific inquiries (Laudan, 1977). The perspectives are grounded by two approaches namely positivism and phenomenology with contributions and views on the reality measurement and knowledge gathering. However, the study undertakes positivist approach due to the fact that knowledge to fill the gap was gathered using structured instrument which is the questionnaire. Besides that, the reality on the other hand was measured using the set of ideas grouped in hypotheses as predictors to the dependent variable for the study.

3.4 Research design

Research design refers to the approach and style undertaken by the researcher based on study requirements to obtain relevant data to fill the study gap (Cresswell, 2012). The designs are several due to the nature and type of the study; as well as the required data to fill the gap. In that case, since the study is descriptive; both explanatory and exploratory designs were used with causal relationship being performed in the first specific objective; and exploration being performed to generate data in other specific objectives.

3.5 Types of data

The study used both primary and secondary data to the extent that primary data were collected from the field and secondary data from several sources published and unpublished. Primary data served as fresh and new data to fill the gap while secondary ones served as the complements to the primary data in the discussion of the results in the course of filling the study gap.

3.6 Sampling design

Sampling design refers to the study population whereas the sample size is expected to be generated from it (Sarndal, 1992). Sampling design is derived from the study area since it is constitutes the actual population size of the area whereas the sample size may be generated. Sample size is generated from the relevant case study selected through various categories and groups relevant to be identified in the area. The study for that matter the sample were obtained from individuals and groups of actors.

3.6.1 Sampling unit

Sampling unit refers to the subject being expected to provide relevant primary data for the study to fill the gap (Bailey, 2008). It can be anything relevant to be used and provide the data; though the study used individuals as respondents and not any other creature. The individuals were actors involved in the maize value chain activity.

3.6.2 Sample size

The study consisted of five (5) sample sizes for the study namely farmers, middlemen, wholesalers, retail sellers and the consumers sample sizes because they were all key actors in maize value chain in Tanzania as their responses were of high value to the inquiry. In totality, the study consisted of 100 respondents from all sample sizes whereas 20 respondents were gathered from each and every group of actors in maize value chain in Tanzania. They served as relevant respondents to give and provide adequate and reliable data relevant to fill the inquiry gap.

The gathering of the sample size is through provision by Webb (1991) that once a population of the area is between 100 and 1000 then 10% of the population can be used as the sample size. If the population of the area is between 1000 and 2000 then 5% of the sample size can be used. Finally, once the population is above 2000 only 1% can be used as sample size for the study. Therefore, the study area constituted population of more than 2000 whereas the selected sample size is valid.

3.6.3 Sample procedure

Sample procedure is the way the sample size is selected for the study (Kish, 1965). The study for that matter used random sampling because the respondents were available in plenty and many in number to the extent that they were randomly picked and selected.

3.7 Methods of data collection

3.7.1 Method of secondary data collection

The method used was documentary reviews whereas readings both published and unpublished; as well as electronic and non-electronic associated with the study and the relevant hypotheses were reviewed. Besides that, in filling the gap the data was used to complement primary data in the analysis and discussion.

3.7.2 Methods of primary data collection

3.7.2.1 Questionnaires

Questionnaire is a document containing questions for the inquiry in progress for data collection purpose to be filled by the respondent in writing (Gillham, 2008).The tool consisted of closed ended questions to carter for variables which are measurable to establish the existing relationship between dependent and independent variables. The tool was applied to the five selected sample sizes for the study to provide relevant data to fill the research gap.

3.8 Measurement of variables

Variables of the study were set in the research tool following the guide provided by the hypotheses measured using the Likert scale format in a scale of five ranging from strongly agree to disagree to get the adequate and reliable data relevant for the required analysis. The setting of the variables in the questionnaires using Likert scale measurement was because questionnaire is the only tool which can be set to generate quantifiable facts as primary data. Likert scale on the other hand serve as the key measurement to ensure that the collected primary data constitute quantifications which were necessary for causality testing in generating new knowledge for the study.

3.9 Validity and reliability

Validity is the instrument which indicates the degree of measurement on what is supposed to be measured (Cogan, 1998). This was well captured through pilot test or pre-testing of the data collection instrument which is the questionnaire that a small sample is taken and data is collected using the tool to verify the consistence of the variables before actual data collection takes place. Once the data proves to be consistent then data collection proceeds.

Reliability on the other hand is the measurement which indicates consistency in study findings before actual analysis to be conducted (Gulliksen, 1987). With that, reliability of the results was measured and determined through the use of Cronbach Alpha Test to determine the consistence and quality of the data as relevant for the further analysis. In that case, Cronbach Alpha test is well illustrated through table 3.1.

Table 3.1 Cronbach Alpha Test

Variables	Cronbach Alpha
Produce Availability	0.772
Nature of Customers and Brokers	0.763
Policy and Regulations	0.804
Transport and Communication	0.791
Availability of Processors	0.822
Sustainability in Maize Value Chain	0.728

Source: Field Data

The table above shows the Cronbach Alpha values for the study variables both independent as predicting ones; and the dependent variable for the indication of the reliability of the data. The results are clear that the variables are all reliable and relevant for further inferential analysis since they are accurate and consistent. This is because Gulliksen (1987) provides for the indication of the data reliability through value of the Cronbach Alpha that once they values are 0.7 and above; then they are all reliable. With that, values as shown in the table above for all variables are above 0.7 which signifies their actual reliability.

3.10 Data analysis

The gathered data were clustered into qualitative and quantitative variables. The questionnaires were computed in SPSS program to get simple descriptive statistics for demographic data of the respondents and their implications for the study. The first study objective was analyzed using inferential test specifically correlation and multiple

regression analyses to clearly show the existing relationship between the independent and dependent variables of the study.

The multiple regression analyses was derived from the linear regression model with multiple variables being included altogether for analysis.Despite that, the study as the results are clearly elaborated using the model as stated by Kraus (2009) stated in the following manner.

$$MVCS = \beta o + \beta 1PA + \beta 2NCB + \beta 3PR + \beta 4TC + \beta 5AP + e$$

Where by

MVCS = Maize Value Chain Sustainability

βo = Constant factor

β1PA = Produce Availability

β2NCB= Nature of Customers and Brokers

β3PR = Policy and Regulations

β4TC = Transport and Communication

β5AP = Availability of Processors

e = Random variable

The second and third specific objectives were analyzed using descriptive statistics i.e. frequency tables and percentages to fill the study gap. The study constituted mixed method both qualitative and quantitative respectively.

3.11 Ethical consideration

The study observed ethics as required in a way that first the regulations of the university in the conduct of the study; as well as the required format in presentation of the study were all observed and followed as required. The work ensured originality since it has not been a plagiarized and or copied since it has passed all requirements pertaining to originality. Moreover, data gathering observed the protection of the respondents through keeping their confidential issues from being public knowledge. In that case, the study

ensured that all information shared between the respondents and the researcher was kept confidential.

CHAPTER FOUR

PRESENTATION OF FINDINGS

4.1 Introduction

The chapter presents the findings on the inquired subject on factors for maize value chain on environmental sustainability in Iringa District. Results are well presented supported with adequate study analysis and the relevant discussion to foster the filling of the knowledge gap of the inquiry. Therefore, the presentation of the chapter on the results, analysis and discussion of the study are shown in the manner that follows:

4.2 Respondents profile

The profile of the respondents in the study was well captured and the information on the personal details was used to describe it. The purpose is to give a clear perception of the actors in maize value chain in their totality in reflection to the context the inquiry is being conducted. In that case, three main variables have been used for the description of the profile of the respondents which are the age, education level and gender respectively.

4.2.1 Age

Results on age of the respondents collected in the field were computed and analyzed with facts being shown in table 4.1.

Table 4.1 Age

		Frequency	Percent
Valid	Below 20	30	30.0
	21-30	36	36.0
	31-40	16	16.0
	41-50	12	12.0
	51-60	6	6.0
	Total	100	100.0

Source: Field Data

Results in table 4.1 shows outcomes on age of the respondents that 30 respondents (30%) were aged below 20 years; 36 respondents (36%) were aged between 21 to 30 years; 16 respondents (16%) were aged between 31 to 40 years; 12 respondents (12%) were aged between 41 to 50 years; and 6 respondents (6%) were aged between 51 to 60 years. This implies that participants as actors in maize value chain in Tanzania in their totality from the production site to the consumer constitutes members from all age groups such as the young, youths, adults and the elderly. The perception is well complemented by Barbier (2006) that actors in the entire process of value chain in maize from the production zone to the final consumer in the market for consumption constitutes members in all age categories in different time and space as well the duties responsible in the process.

4.2.2 Gender

Results on gender of the respondents which were collected were analyzed with the results being illustrated in table 4.2.

Table 4.2 Gender

		Frequency	Percent
Valid	Male	80	80.0
	Female	20	20.0
	Total	100	100.0

Source: Field Data

Results in table 4.2 shows information on gender of the participants in value chain process such that male as men were 80 (80%) and female as women were 20 (20%) of the respondents. This implies that in maize value chain process particularly in the production, packaging and transportation; most of the participants are men though at customer level; both men and women are good participants in the process. The view corresponds with Harper (2014) that in most cases maize value chain consist of most men as majority in the production all the way to the transportation of the products to the market. However, in the market as consumers both men and women are actors in perfect ratio.

4.2.3 Education

The information on the education status of the respondents collected were analyzed with the results being shown in table 4.3.

Table 4.3 Education

		Frequency	Percent
Valid	Certificate	3	3.0
	Diploma	3	3.0
	Bachelor Degree	11	11.0
	Masters	4	4.0
	Primary Education	30	30.0
	Secondary Education	17	17.0
	No formal education	32	32.0
	Total	100	100.0

Source: Field Data

Results in table 4.3 shows the level of education on the participants to maize value chain in Tanzania that 3 participants have certificate qualification, 3 also have diploma qualification, 11 respondents have bachelor degree, 4 participants with masters degree, 30 respondents with primary education, and 32 with no formal education at all. This implies that actors in maize value chain Tanzania comprise different people from the production to the customers that since they are mixture are members with all different levels of education.

The perception is well acknowledged by Gaddis (2016) that actors in maize value chain are participants with different levels of education from lower levels to higher levels since they are scattered everywhere both in rural and urban settings from the producers to the customers in different places and corners in the country.

4.3 Factors for maize value chain sustainability

The study highlighted five factors as predicting variables to be tested for subsequent inferential analysis for the filling of the inquired gap for that matter. The identified factors are produce availability, nature of customers and brokers, policy and regulations, transport and communication, and availability of the processors. They were analyzed for

the generation of new knowledge using inferential analysis specifically correlation and multiple regression analysis for the examination and indication of the existing relationship between study variables both independent and dependent.

However, at first mean and standard deviation were also performed to show the variable which influence the dependent variable best among the predicting ones in relation to the mean variables of the study to determine the significant connection with the correlation analysis for verification of the data. Standard deviation also is being performed to show the minimum level of dispersion among study respondents in relation to the gathered results of the study. Therefore results are shown in table 4.4

Table 4.4 Mean and Standard Deviation

	Mean	**Standard Deviation**	**N**
Sustainability in Maize Value Chain	3.251	2.2112	100
Produce Availability	3.825	2.2754	100
Nature of Customers and Brokers	3.625	2.2426	100
Policy and Regulations	3.569	2.2425	100
Transport and Communication	3.745	2.2634	100
Availability of Processors	3.648	2.2562	100

Source: Field Data

Study results indicates the analysis of the study variables both the independent and the dependent as well as their implications in filling the inquired knowledge gap. The results showed that produce availability is the variable among the independent variables with the highest influence among all others on the dependent variable since it has the highest mean value (3.825) than others.

The entails the fact that maize value chain sustainability in Tanzania is largely influenced by the fact that the produces are available as the primary factor for the rest to take place and gets a room to be exercised. The standard deviation on the other hand

shows that the variables values do not have strong differences since the variance between variables is not high. Therefore, it is evident that respondents' opinions were never far away from each other.

4.3.1Correlation andmultipleregression

The two inferential analyses were performed in the study to show the relationship between the two study variables which are tested their causality relationships. They constitute independent ones such as produce availability, nature of customers and brokers, policy and regulations, transport and communication, and availability of processors. The dependent ones is the maize value chain sustainability. Despite that, first and foremost the test performed before correlation and multiple regression is the test of all independent variables as assumptions of the study on the dependent variable with results being shown in table 4.5

Table 4.5 Model Summary

Model	R	R square	Adjusted R Square	Standard Error of Estimate	Change Statistics			Durbin-Watson
1	.782	.770	.765	51.321	.483	93.637	.000	1.990

Source: Field Data

Predictors as independent variables: produce availability, nature of customers and brokers, policy and regulations, transport and communication, and availability of processors Dependent variable: sustainability of maize value chain results in table 4.5 shows the level of influence among all independent variables on the dependent variable through the value of R^2 that sustainability of maize value chain in Tanzania is strongly influenced and determined by produce availability, nature of customers and brokers, policy and regulations, transport and communication, as well as the availability of processors at the level and or magnitude of 77%. This is clear that all assumptions of the study as independent variables are all positive and tenable as relevant measures and or

determinants to the maize value chain sustainability in Tanzania as the dependent variable.

4.3.1.1 Correlation analysis

Correlation analysis is also conducted in the study to show the variable which influences most the maize value chain sustainability as the dependent variable. The analysis is illustrated in table 4.4.

Table 4.6 Correlation Analysis

		Maize Value Chain Sustainability	Produce Availability	Nature of Customers and Brokers	Policy and Regulations	Transport and Communication	Availability of Processors
Person corr.	Maize Value Chain Sustainability	1.000	.580	.417	.324	.436	.469
	Produce Availability	.580	1.000	.101	.090	.083	.083
	Nature of Customers and Brokers	.417	.101	1.000	.101	.104	.102
	Policy and Regulations	.324	.090	.101	1.000	.107	.109
	Transport and Communication	.436	.102	.103	.107	1.000	1.000
	Availability of Processors	.469	.080	.101	.102	.109	1.000
Sig. (1-tailed)	Maize Value Chain Sustainability	1	.000	.000	.000	.000	.000
	Produce Availability	.000	1	.076	.014	.050	.050
	Nature of Customers and Brokers	.000	.078	1	.050	.007	.007
	Policy and Regulations	.612	.004	.004	1	.009	.009
	Transport and Communication	.000	.040	.007	.009	1	1
	Availability of Processors	.000	.051	.005	.007	.050	1
N	Maize Value Chain Sustainability	100	100	100	100	100	100
	Produce Availability	100	100	100	100	100	100
	Nature of Customers and Brokers	100	100	100	100	100	100
	Policy and Regulations	100	100	100	100	100	100
	Transport and Communication	100	100	100	100	100	100
	Availability of Processors	100	100	100	100	100	100

Source: Field Data

Table 4.6 shows results on correlation analysis of the study variables both independent and dependent ones that the highest correlation is on produce availability which is the fact that it influences the dependent variable most than all other independent variables of

the study. The correlation is significant at .000 with the value of .580 showing that it influences the dependent variable most than all other independent variables.

This implies that sustainability of value chain in Tanzania is mostly influenced by produce availability. Despite the fact that the correlation of the variable with the highest influence is significant and positive; the coefficient is small which the lack of multicollinearity. This is a problem which needs to be sorted well such that it is best handled through multiple regression analysis.

4.3.1.2 Multiple regression analysis

Multiple regression analysis is performed to significantly show the influence of the independent variable independently on the dependent variable. The analysis has been derived from linear regression model to incorporate all study variables to be tested to show their contribution independently to the dependent variable. The analysis is well illustrated using table 4.7.

Table 4.7 Multiple Regression Analysis

Model	Unstandardized coefficients		Standardized coefficients	T	Sig.
	B	Std. error	Beta		
(constant)	-37.224	8.768		-1.633	.127
Produce Availability	.099	.009	.549	13.544	.000
Nature of Customers and Brokers	4.332	.282	.542	13.245	.000
Policy and Regulations	.241	.073	.520	13.375	.000
Transport and Communication	4.580	.296	.523	13.497	.000
Availability of Processors	4.437	.281	.537	13.268	.000

Source: Field Data

Results in table 4.7 shows that all five independent variables such as produce availability, nature of customers and brokers, policy and regulations, transport and communication, as well as the availability of processors are all positive and statistically significant on maize value chain sustainability as the dependent variable. This entails the fact that maize value chain sustainability in Tanzania is strongly influenced by produce availability, nature of customers and brokers, policy and regulations, transport and communication, as well as the availability of processors.

CHAPTER FIVE

DISCUSSION OF THE FINDINGS

5.1 Produce availability and maize value chain sustainability

The results in table 4.8 shows that produce availability as the study predictor constitutes positivity and significance statistically on maize value chain sustainability at .000 level. This implies that maize value chain sustainability in Tanzania is determined by produce availability as the factor relevant to facilitate the process. The view is connected with Barbier (2006) that maize value chain in Tanzania as a practice and economic venture is well fostered by the fact that the commodity as the produce is available in plenty to the extent that it can be produced throughout the year in various places and regions in the country. This ensures sustainability of the produce since the commodity is well assured of being available as the produce.

Gaddis (2016) also states that maize value chain in Tanzania is well practiced regardless of the level but it is highly sustainable since the produces are well available and obtained throughout the year and the demand is still high and may never cease to exist. This assures the sustainability of the value chain because regardless how the produces may be available in their plentness; but the demand is always high and the produce as the commodity is still needed to the extent that the need in Tanzania is endless since it constitutes food which is mostly consumed by many in the entire country.

5.2 Nature of customers and brokers and maize value chain sustainability

Table 4.8 results also showed that nature of the customers and brokers as the independent variable has been revealed to be positive and significant on the maize value chain sustainability as the dependent variable at .000 level; with the T value of 13.245. This is to say that maize value chain sustainability in Tanzania is influenced by nature of the customers and brokers as the factor. The perception is well inclined with Harper (2014) suggesting that nature of customers and brokers play significant role in ensuring

sustainability of maize value chain in Tanzania because customers are plenty such that the produce is mostly consumed in high demand by customers to the extent that it may never cease to exist.

Brokers on the other hand are individuals who have well invested in the activity and practices to the extent that in most cases they heavily depend on the activity to earn income and sustain living. In that case, they are eager to perform and engage in the activity provided that the produce are available and the demand is still in existence by customers. Heale and Wong (2010) also suggests that customers for the produce in Tanzania are more than plenty since maize constitutes food which is mostly accepted by many people in various ethnic groups and regions in the country to the extent that it serves as a good venture for business activities to be undertaken which assures the sustainability of the process including in its value chain.

5.3 Policy and regulations and maize value chain sustainability

Results in table 4.8 shows also policy and regulations as the independent variable as being positive and significant on maize value chain sustainability with T value of 13.375 with the significant level of .000. This provides that maize value chain sustainability in Tanzania is also fostered by policy and regulations as the factor. The assertion is well complemented by Suleiman (2013) that maize value chain in Tanzania is regulated by provisions which are friendly among actors in the process from the producers in the farms to the customers such that it fosters the process and activity to be well sustainable since it offers adequate returns on income generation.

Skinner (2015) also suggests that policy and regulations governing the practice of maize value chain in Tanzania are friendly and motivating many to engage in the activity and or business such that it assures income generation as well smooth practice and cooperation with the government as the machinery of the state. This in totality assures value chain sustainability to the extent that the activity keeps on flourishing in the market and the economy.

5.4 Transport and communication and maize value chain sustainability

Results in table 4.8 indicates that transport and communication as the study predictor is being identified positive and statistically significant on maize value chain sustainability in Tanzania at the level of .000 with T value of 13.497. This claims that maize value chain in Tanzania is being determined by transport and communication as the factor. The claim is being supported by Wairagala (2014) that value chain in maize and any other produce in Tanzania is strongly influenced by means of transport and communication available since they are part of value addition on the produces towards their destinations for consumption and to the customers.

Barbier (2006) suggests that value chain sustainability in maize produces is strongly stable and highly sustainable as a result of the reliable means of transport and communication that communication between actors in the process all over in both rural and urban settings is highly effective and sufficient with adequate network coverage using some cellular companies. Also, most of the roads to the interiors are passable to the extent that value chain is deemed to be effective and sustainable as a result of reliable communication and transportation.

5.5 Availability of processors and maize value chain sustainability

Results in table 4.8 indicate that processors availability as the independent variable is deemed to be significant statistically and positive on maize value chain sustainability as the dependent variable at .000 level with T value of 13.268. This is the fact that maize value chain sustainability in Tanzania is influenced by availability of processors as the factor. The view is supported by Harper (2014) suggesting that processors in maize value chain are the key and primary determinant in value addition such that their presence and availability is very important and significant for the sustainability of the activity in Tanzania.

Wairagala (2014) also suggests that value chain constitutes the element and practice on value addition of the product and or produce. Since that is the case, in maize value chain in Tanzania processors are the leading in value addition measures such that value chain is essential and deemed highly sustainable since they are available in plenty for ensuring that the commodity is being processed to undergo some additions to be accepted in the market.

Despite that, the study further indicated other factors ensuring maize value chain sustainability in Tanzania from all actors in place in the entire process. The factors were well provided by all sample sizes for the study such that the first one is forced majors which include issues brought about by nature such as floods, pests and diseases and others in form of calamities and or natural disasters. This is due to the fact that maize production and activities are performed and conducted in the environment as the surroundings such that the well-being of the environment is very important to determine the outcomes of the activity on the positive and or negative.

Since that is the case, once the environment is not prone to such disasters and occurrences, value chain is deemed to be highly sustainable because once such disasters occur in an area if there are produces, they become highly destroyed and fragmented to the extent that it becomes difficult to ensure sustainability. This is evident in a way that they not only destroy the produces; but they also affect the fertility of the area and or land since most of the remedies to enable the growth of the produces tend to be destroyed by such calamities which makes the area unfertile and affects the sustainability since once the crops are not produced; or are less available the entire process is affected.

Despite that, the legal issues and implications also are efficient and effective factors to ensure sustainability of maize value chain because they are essential in setting the conduct for the practices in the entire activity and or process. Once the policies and regulations in place are favorable for the activity to be conducted on positive returns among actors then sustainability is well ensured and guarantees and vice versa. This is

evident with an example of taxes imposed that it is the right of the government to have a share on the activities taking place in the country which are economic as income generating. Also, it is the duty of each and every citizens with a suitable income generating activities to pay tax to the government for the conduct of adequate government activities pertaining to the deliveries of goods and services to the public. However, since tax payment is the law and mandatory once performed well as the regulation in a manner that is friendly to the income earners including in maize value chain which guarantees gains to the actors; automatically sustainability may be achieved in the activity and vice versa.

Besides that, the economic factors are also essential in ensuring maize value chain sustainability through pricing and market conditions. This is due to the fact that prices of the product is very important since they guarantee gains and or losses on the actors in the process pertaining to the entire process of value addition of the produces all the way to the market. The prices for that matter are important in a way that they foster the activity either to grow and prosper or being declared and perceived unimportant as not beneficial for being ventured into.

Markets on the other hand are important because they are destinations which requires the production and the entire process of value chain to exist and be visible and useful. This is important because the existing of the markets is what fosters the entire value chain process and activity to exist, prosper and take place since the entire process and activity seeks to satisfy and respond to the market demands and requirements.

In addition to that, transportation systems in place are remedies to enable and foster sustainability of maize value chain since the produces through the entire chain of actors needs to be moved from one point to the other for value addition until they reach the market for consumption. The entire process involves transportation of the produces to several required destinations that whereas the efficient and effective means are required to exist and being in place for the activity to be adequate and reliable. This is necessary because maize value chain pertaining to transportation in most cases uses roads whereas

once the means are effective through the incorporation of the new railway; then sustainability of the activity may be well realized and guaranteed.

Moreover, competition in the process also fosters sustainability of maize value chain because the presence of several producers and actors fosters performance of the activity in a manner that guarantees efficiency and effectiveness. This helps the process and the activity to be strong since competition guarantees innovation and creativity to ensure adequate supply of the produces as the product in a manner that is affordable and well suitable to the customers for consumption purposes and not otherwise. In that case the results are well shown through table 4.6.

Table 5.1 Sustainability

		Frequency	Percent
Valid	Forced majors	28	28.0
	Legal issues	32	32.0
	Economic factors	22	22.0
	Transportation	12	12.0
	Competition	6	6.0
	Total	100	100.0

Source: Field Data

Table 4.6 shows the suitable factors in Tanzanian context constituting maize value chain sustainability. This implies that maize value chain sustainability including any economic activity is being influenced by various social, political, economic and legal factors in place for their existence, continuity and long term survival. The view corresponds with Gereffi (1994) that value chain sustainability in any society or place for that matter is attributed successfully by various factors which constitutes social, political and economic aspects such as prices of the products, market availability, political situations pertaining to stability, transportation and others.

Gurria (2012) on the other hand suggests that value chain sustainability in any produce(s) consist of the fact that it is combination of various social, political and economic concerns which depend on each other. This is evident in a way that politically constitutes policies and regulations designed and implemented to shape the behavior of the practice which cut across in economic and social aspects which depend one another in the process and operations.

5.6 Roles of different actors in maize value chain sustainability

The study indicated roles of actors involved in maize value chain sustainability in Tanzania that facts generated in the study are such that maize value chain does not operate in vacuum since it constitutes several actors in the process include farmers as the primary ones, middlemen as suppliers and processors as well as brokers and transporters, the government, wholesalers, retailers and the consumers. Each actor in the process has different roles to play as significant actors in the sustainability of the value chain.

Farmers' to start with as potential actors are important and primary ones since they are the producers of the produces such that the availability of the produces and the products depends on the farmers as the primary actors. Besides being producers, they harvest the products as well from farms whereas they add value to the produces through taking out the grains and pack them into the sacks. This has also fosters addition of value in the commodity from harvesting until the sacks are packed and sealed.

Apart from farmers, the other actor(s) in maize value chain are middlemen comprising of various members such as processors processing the products in all that needs to be processed from the grains to the flours in the production areas and others. They play significant role in adding value to the produces since they transform the grains to the products which are consumable such as flour and others. Despite processors, transporters as well serve as another key actors playing the role of transporting the commodities from the production areas to several markets in various areas within the country.

They also add value to the product through the costs incurred as a result of the transportation costs. The other actor as well is the government both the central and local authorities since they provide farmers with inputs such as seeds, fertilizers and setting of suitable policies for the activity to take place and commenced. Moreover, as the state apparatus provides the security and stable environment for the operations and activities to take place peacefully and endless. This is value addition since the government is vested with the role of ensuring that security is stable and available at all times.

The other actor in the process are wholesalers buying from middlemen that they play a significant role in adding values as they convert the products into various packages and provisions which are essential for selling to various retailers such as shops, supermarkets and other settings. The other actors are retailers purchasing from wholesalers and transform the product into various other products such as food in restaurants, vending and others. Selling the products in various shops and settings at retail prices.

Besides that, the government also serve as the indirect actor through the Ministry responsible for agriculture and other sub units both in central and local government. They play a vital and significant role in the value chain process and enhancement in a way that they intervene the market when the security of the activity is at stake. This is done in various ways such as subsidies provision whereas the notable efforts were the financing initiatives which were performed by the Ministry of Finance and Agriculture through agriculture window officiated by TIB Development Bank for the provision of subsidies in form of funds to the farmers.

The efforts enabled farmers to access funds to engage in the production of food crops to carter for food security with highly minimal rates as charges which were ranging between 6% to 7% returns. Moreover, the government has introduced the Bank of Agriculture specifically to assist farmers in crop production especially food production since they have been in most cases unbankable to the commercial banks. This is an important initiatives in maize value chain among actors in the process which guarantees the continuity of the practice.

The last actor is the consumer whom also transform the product into various varieties for consumptions which are consumed in different ways and forms. This implies that value chain in any activity constitutes various actors to be live and executed such that none of such activities can ever be commenced without actors being available. The perception is well complemented by Microlinks (2009) suggesting that value chain is an activity which involve multiple actors in the process depending on the context as well the level of economy of the country; and the technology used in the country. This entails the fact that value chain is well and sustainable provided that actors in the process are plenty.

5.7 Challenges for maize value chain sustainability

The study results indicate several challenges in maize value chain process and activity which becomes an obstacle towards its sustainability through the sample sizes identified and selected for the study.

(i.) Storage facilities

The identified challenges are such that storage facilities of the produces is very poor and low such that once the produces are in plenty it becomes difficult to store them for long time while they remain fresh and okay for further value additions for business purposes. This is due to the fact that most of the storage facilities are poor and performed in crude way such that it affects the sustainability on long term basis since some actors in the process once they accumulate enough they shift to other activities as a result of such challenge.

(ii.) Warehousing facilities

It was revealed that warehousing facilities are very poor in Tanzania especially in places where they cultivate maize produces and other produces as well. This is very poor which leads to lots of produces being affected and get to decay. This has been affecting the sustainability of the value chain activity since the warehousing is effective and efficient means to store the produce and effective and safety manner. Since the warehousing are poorly distributed and available in producing and processing areas; it has been

discouraging some actors to the extent that once they are able to secure other means to earning income move. This has also made the practice not to be perceived as something of great value as a result of the persisting challenge.

(iii.) Limited level of education

It was pointed out that limited level of education among actors in the process such as farmers, processors, middlemen, transporters and others. This is a setback because the activity is conducted and performed in low scale as well as minimal vision as a result of limited capacity of the practitioners in the process. This has been causing some to perceive the exercise as low and insignificant as a result of lack of education. Also, though actors work as hard as they can the returns in most cases are not encouraging since the level of understanding and capacities of the practitioners is very limited.

(iv.) Limited infrastructure

It was found out that limited infrastructure particularly means of transport and communication most especially roads that during summer most of the roads are passable despite the fact that they are not in good conditions as tarmac. However, during rainy season most of the roads are not passable such that some of the vital key areas to access the produces are not passable. This discourages the activity since it sometimes becomes more of seasonal activity to the extent that it affects the cash flow of various actors dependent in the activity.

(v.) Price instability

It was found out that price instability that prices in most cases are not stable such that they depend with the availability of the produces that once they are highly available the price automatically drops. This benefits the consumers while affecting the entire actors in the value chain process on the returns because the costs involved in the process are similar while price changes. This affects the well-being of the actors in their cash flow through the income generated which entirely affects their plans and all to do with the business.

(vi.) Nature of the market

Furthermore is the nature of the market that it is competitive in most cases such that it becomes a challenge to the actors in the value chain process because it fosters mass production which is essential for the market while at the same time falls; and actors in the process finds that their return is highly minimal and sometimes returns the capital with highly minute profit. This has been affecting actors in the process such that some resort to other activities and get away from the value chain activities.

(vii.) Capital inadequacy

Moreover, capital inadequacy is the major problem among actors that they constitute limited capital which makes them to produce in crude ways which is difficult to grow and advance. This is a problem because most of the actors is difficult to be landed by commercial banks and several other financial institutions since they are far from conventional system requirements to be landed such as adequate collaterals, track records of their businesses and others. This has been enabling them to conduct their activities in manners that are unfriendly and inconsistent with growth and prosperity. In that case, results are well illustrated in table 4.7.

Table 5.2 Challenges

		Frequency	Percent
Valid	Storage	36	36.0
	Warehousing	40	40.0
	Limited level of education	4	4.0
	Poor infrastructure	4	4.0
	Price instability	6	6.0
	Nature of the market	4	4.0
	Capital inadequacy	6	6.0
	Total	100	100.0

Source: Field Data

Table 4.8 shows the challenges facing actors in maize value chain sustainability in Tanzania. This implies that economic activities in less developed countries are constrained by severe challenges which sometimes threats the sustainability of the activities among actors including value chain sustainability on various produces. This is mostly attributed by economic situations and factors associated with income and others as well in entire pattern of performing the activities and the nature of the operations by the government.

The view corresponds with Heskett (1997) that in most developing countries various economic activities which are income generating requiring smooth practice through infrastructural provisions which are adequate are severely being faced with massive challenges which are strongly attributed by limited level of economies whereas the government is not able to provide good and sufficient conditions as means for the market to enjoy and produce diligently such as infrastructures, facilitation, subsidies where necessary and others.

This has been the cause since the economy constitutes vital significance because it assures the generation of resources necessary to be utilized in the process and the activities for performance concerns. This is due to the fact that maize value chain requires well established infrastructures such as passable roads and others for the activity to be smooth in areas where the produces originates. The task is vested to the government due to the resources required. With that, it has been difficult to realize that since the economy has been limited for activities to be undertaken slowly in balancing with other important issues.

This makes some of the undertakings to be very difficult on their practices since lots of challenges are incurred in the process. Kaplinsky and Morris (2001) on the other hand suggests that value chain is an activity which needs government support to be well performed especially with infrastructural settings in various areas. However, in countries with limited economies it becomes difficult for such mechanisms to enable the smooth process to be well set which affects the entire practice of the activities. This has been a

challenge even in Tanzania since the means to foster smooth practices such as transport means and subsidies have been highly inadequate and insufficient for the activity to be faced with severe stagnations with participants' lives and well-being difficult to excel higher.

CHAPTER SIX

SUMMARY, CONCLUSION AND RECOMMENDATIONS

6.1 Introduction

The chapter presents the summary of the entire inquiry from the problem development all the way to the actual results of the study and the outcomes. Also, the chapter presents as well the conclusion of the study as the actual perception and point of view on the new knowledge gathered based on the particular inquired gap. Moreover, the chapter presents the recommendations of the study on the observed situations and scenarios requiring further inputs for further nourishments. In that case, the chapter constitutes the following:

6.2 Summary

The study intends to examine relevant factors for maize value chain sustainability in Tanzania with the focus on Iringa District as the case study. The inquiry was initially guided by three specific objectives which brought about research questions as remedies to fill the inquired gap of the study. The study was performed using both explanatory and exploratory study designs as the appropriate methodology guided the study in filling the gap through response in research questions.

Data for the study were collected using the questionnaire to gather primary data from the selected study area. The data collected were clustered into qualitative and quantitative variables though were computed all together in SPSS program. They were analyzed in a way that descriptive statistics were generated as analytical measurements to describe the profile of the respondents; as well as responding to the first and third specific objectives. Inferential tests specifically correlation and multiple regression analysis were included in showing the existing relationship between study variables in the second specific objectives.

Results of the study were such that maize value chain sustainability is closed influenced by environmental factors which is the interlinking between various social, political and economic factors all together to foster the process. Also, maize value chain sustainability is constrained by various challenges as shortcomings as a result of the fact that the country' economy is on the process of growth to the extent that massive ventures needs to be undertaken to ensure stability of the process and the activity. Finally, on factors influencing sustainability of maize value chain in Tanzania; the outcomes are such that all five factors as study predictors were all revealed to be positive and significant statistically on maize value chain sustainability as dependent variable.

6.3 Conclusion

Maize value chain in Tanzania is an active economic venture and activity which constitutes significant number of actors in the process. The activity as the chain is essential since the commodity is in adequate supply in relatively adequate value additions measures and initiatives such that sustainability is visible since it availability is in plenty. This is well supported by service profit chain as the theory used that value chain activity usually must assure efficiency, effectiveness, profitability, satisfaction and customer loyalty.

Despite that, the process and activity towards sustainability is largely constrained by various shortcoming to the extent that sustainability of the process becomes shaken since actors as participants some tend to leave the activity since they feel discouraged as a result of the challenges which needs to be strongly addressed to overcome the situation. This is well reflected with the value grid theory on value chain that it is not a linear process but rather complex one with severe issues which are culminate to the persisting challenges in the process.

6.4 Recommendations

Since maize value chain sustainability is being threatened and affected by certain persisting challenges; the study recommends that the government should embark on heavily subsidizing agriculture as not only farmers; but also actors in value chain process in maize and other produces. This is due to the fact that farmers without processors and other actors in value chain process in agriculture produces they are insignificant. In that regard, measures should be well set for the actors in value chain process as well to receive benefits for being subsidized such as capital to improve their patterns of performance and several other equipments necessary to be assisted by the government.

The statement is complemented by Microlinks (2009) that value chain initiatives and activities pertaining to agriculture produces in developed economies have been advancing and become highly competent and useful in the economy since they are highly supported and assisted by the government through subsidies. This has been in place for many years such that at the moment they are large entities to be supported by the financial entities in the economy such as commercial banks and others.

The study also recommends that the government directly or through stakeholder should emphasize strongly on the construction of warehouses for storage purposes in various places and localities to ensure that storage facilities are adequate for the smooth operation of the activities. This has been a major problem for actors in the process especially processors and farmers that they lack adequate places to store their produces in a manner that is adequate and effective and efficient. This is important to be addressed to the actors in the process.

The perception is connected with Barbier (2006) that the adequate practice and performance in value chain activity being it maize, or any other crop presence of warehouses is very important for storage purposes for future plans and patterns. However, all places with adequate warehouses and storage facilities value chain tend to be highly sustainable to the extent that it assures profitability of the activity to the actors

involved in the process particularly processors and the producers as prominent actors in the process.

Besides that, the study suggests that the government should advocate and emphasize provision of training and skills to the actors through various actors and stakeholders such as non-governmental organizations (NGOs) and several forums in place to enable easy and reliable practices in the activity since most of the actors constitutes limited skills and knowledge on the processes and activities they perform for that matter. This is important since it assures the availability of the skilled participants in the activity relevant for the performance of the activity.

The perception as well is complemented by Harper (2014) that most of the actors as practitioners in maize value chain activities are less skilled since they have limited education level. In that note, it is important for the government to conduct a census to have adequate record and locations of such actors in various localities and establish mechanism to enhance and promote capacity building for the greater good of the nation and the actors as well. This is possible since during the first phase of government such initiatives were there such that it is possible for such ventures to be undertaken again for the greater good of the country\and people at large.

Moreover, the study recommends that the government should include setting of some means of transport and communication particularly roads in all agricultural producing areas as priorities to be operational at all times throughout the year and not seasonal. This automatically may foster the sustainability of value chain since poor means of transportation has been a major challenge to enable smooth practice of value chain in Tanzania. Therefore, the initiative may automatically foster performance and boost sustainability of the activity.

The assertion is well complemented by Wairagala (2014) that sustainability of value chain activities including maize value chain has been highly constrained with poor transportation facilities especially roads that most are not in good conditions especially

inn rainy seasons. This has been affecting the activity since it has been perceived as a seasonal activity while the actual fact it can regular throughout the year. Once the transportation means are highly effective sustainability of the process become well enhanced.

REFERENCES

Allen, C. K. (2008). Policy Practice for Social Workers: New Strategies for a New Era. Routledge Publishers.

Ambrose, S. E. (2000). Nothing Like it in the World; The men who built the Transcontinental Railroad 1863–1869. Simon & Schuster.

Appel, M. & Richter, T. (2007). Persuasive Effects of Fictional Narratives Increase Over Time. *Media Psychology, 10*(1), 113-134.

Arai, S. I. (2011). Lake Victoria Tragedy. Arai's Zanzibar, Tanzania Page.

Bailey, R. A. (2008). *Design of Comparative Experiments*. Cambridge University Press.

Bailey, R. A. (2008). *Design of Comparative Experiments*. Cambridge University Press.

Barbier, M. P. (2006). Market Access for Maize Smallholder Farmers in Tanzania.

Campbell, D. & Stanley, J. (1963). *Experimental and Quasi-Experimental Designs for Research*. Boston: Houghton Mifflin Company.

Cogan, R. (1998). Critical Thinking: Step by Step. University Press of America.

Country Profile (2016). Tanzania. New Agriculturist.

Creswell, J. W. (2012). Educational Research: Planning, Conducting and Evaluating Quantitative and Qualitative Research. Upper Saddle River, NJ: Prentice Hall.

Davison, B. (1957). Neutron Transport Theory. Oxford University Press.

Dilts, J. D. (1996). The Great Road: The Building of the Baltimore and Ohio, the Nation's First Railroad, 1828–1853. Palo Alto, CA: Stanford University Press.

Emmel, N. (2013). *Sampling and Choosing Cases in Qualitative Research*: A Realist Approach. London: Sage.

Gaddis, I. (2016). Land of Opportunity: Should Tanzania Encourage More Large-Scale Farming? Africa Can End Poverty.

Gereffi, G. (1994). The Organization of Buyer-Driven Global Commodity Chains: How US Retailers Shape Overseas Production Networks. In G. Gereffi, and M. Korzeniewicz (Eds), Commodity Chains and Global Capitalism. Westport, CT: Praeger.

Ghemawat, P. (2002). Competition and Business Strategy in Historical Perspective. Business History Review. Harvard Business Review.

Gillham, B. (2008). Developing a Questionnaire. London, UK: Continuum International Publishing Group Ltd.

Gillham, B. (2008). *Developing a Questionnaire*. London, UK: Continuum International Publishing Group Ltd.

Goodwin, C. J. (2005). *Research in Psychology*: Methods and Design. USA: John Wiley & Sons, Inc.

Green, M. C. & Brock, T. C. (2000). The Role of Transportation in the Persuasiveness of Public Narratives. *Journal of Personality and Social Psychology*, *79*(5), 701-721.

Green, M. C. & Brock, T. C. (2002). In the Mind's Eye: Transportation-Imagery Model of Narrative Persuasion. In M. C. Green, J. J. Strange & T. C. Brock (Eds.), *Narrative impact: Social and cognitive foundations*. (pp. 315-341). Mahwah, NJ: Lawrence Erlbaum.

Gulliksen, H. (1987). Theory of Mental Tests. Hillsdale, N.J.: L. Erlbaum Associates.

Gurria, A. (2012). The Emergence of Global Value Chains: What Do They Mean for Business. G20 Trade and Investment Promotion Summit. Mexico City: OECD.

Hanfling, O. (2003). *Logical Positivism. History of Philosophy*. Routledge.

Harper, D. (2014). Tanzania. Online Etymology Dictionary.

Harper, D. (2014).Tanzania. Online Etymology Dictionary.

Heale, J. & Wong, W. (2010). Tanzania. Marshall Cavendish.

Heskett, J. L. (1997). The Service Profit Chain: How Leading Companies Link Profit and Growth to Loyalty, Satisfaction, and Value. New York: The Free Press.

Hylton, S. (2007). The Grand Experiment: The Birth of the Railway Age 1820–1845. Ian Allan Publishing.

Kaper, L. H. (1982). Spectral Methods in Linear Transport Theory. Birkhauser Basel.

Kaplinsky, R. & Morris, M. (2001). A Handbook for Value Chain Research. Brighton, England: Institute of Development Studies, University of Sussex.

Kerner, B. S. (1998). Experimental Features of Self-Organization in Traffic Flow. Physical Review Letters, 81, 3797–3400.

Kerner, B. S. (1999). Congested Traffic Flow: Observations and Theory. Transportation Research Record, Vol. 1678, pp. 160 – 175.

Kerner, B. S. (1999). The Physics of Traffic. Physics World Magazine.

Kerner, B. S. (2004). The Physics of Traffic, Springer, Berlin, New York.

Kerner, B. S. (2009). Introduction to Modern Traffic Flow Theory and Control: The Long Road to Three-Phase Traffic Theory. Springer, Berlin, New York.

Khaidukov, D. &Tasalov, K. (2016). The Role of Institutions in Sustainable Development of the City Regions in the United Kingdom and Russian Federation. Public Administration of the Russian Federation: Challenges and Prospects: International Conference of Lomonosov Moscow StateUniversity Press.

Kish, L. (1965). Survey Sampling. Wiley.
Kish, L. (1965). Survey Sampling. Wiley.
Kovel, J. (2007). The Enemy of Nature: The End of Capitalism or the End of the World?. New York, NY: Zed Books Ltd.

Kuhn, T. S. (1962). The Structure of Scientific Revolutions. Chicago: University of Chicago Press.

Lewis, M. J. T. (2009). Railways in the Greek and Roman World. Routledge Publishers.

Marshall, J. (1979). The Guinness Book of Rail Facts & Feats.

Martin, J. (1995). The Great Transition: Using the Seven Disciplines of Enterprise Engineering. New York.

Matthews, S. (2013). The Tax Policy Landscape Five Years after the Crisis (Report). OECD Taxation Working Papers. France: OECD.

Microlinks, L. (2009). Value Chain Development. Washington, D.C.: USAID.

Mitchell, J.; Coles, C. &Keane, J.(2009). Upgrading Along Value Chains: Strategies for Poverty Reduction in Latin America. Briefing Paper. London: Overseas Development Institute.

Morlok, E. K. (2005). First Permanent Railroad in the U.S. and its Connection to the University of Pennsylvania.

Payton, P. (2004). Oxford Dictionary of National Biography. Oxford University Press.

Pil, F. K. &Holweg, M. (2006) Evolving from Value Chain to Value Grid. MIT Sloan Management Review, 47(4): 72-80.

Polak, L. & Green, J. (2015). *Using Joint Interviews to Add Analytic Value*. Qualitative Health Research.

Railway Gazette International (2007).October Start for Tanzania Rail Concession.

Riisgaard, L. & Ponte, S. (2014). Pro-Poor Value Chain Development: 25 Guiding Questions for Designing and Implementing Agroindustry Projects. UNIDO.

Robson, C. (1993). *Real World Research:* A Resource For Social Scientists and Practitioner Researchers. Malden: Blackwell Publishing.

Sarndal, S. W. (1992). *Model Assisted Survey Sampling*. Springer-Verlag.
Sarndal, S. W. (1992). *Model Assisted Survey Sampling*. Springer-Verlag.
Sasser, E. L. (1997). The Service Profit Chain. New York: Free Press.

Shepherd, A. (2016). Including Small-Scale Farmers in Profitable Value Chains. Wageningen, Netherlands: CTA Publishing.

Skempton, A. W. (2002). A Biographical Dictionary of Civil Engineers in Great Britain and Ireland, John Birkinshaw.

Skinner, A. (2005). Tanzania and Zanzibar. New Holland Publishers.

Skinner, A. (2015). Tanzania & Zanzibar. New Holland Publishers.

Smith, D. L. & Reese, M. B. (1998). Women as Policy Makers and Donors: Female Legislators and Foreign Aid. European Journal of Political Economy. Elsevier. 41: 46 - 60.

Storey, S. (2011). Charleston & Hamburg Railroad. Railga.com.

Suleiman, R. (2013). Current Maize Production, Postharvest Losses and the Risk of Mycotoxins Contamination in Tanzania. Gareth Stevens Publishers.

The East African (2010). Railways Liberate our Geography, they cannot be driven by Pedestrian Thinkers.

Vaughan, A. (1997). Railway Men, Politics and Money. London: John Murray.

Wairagala, W. (2014). Tanzania. Gareth Stevens Publisher.

Wolmar, C. (2009). Joining up Europe. Blood Iron and Gold: How the Railways Transformed the World. Atlantic Books.

APPENDICES

MZUMBE UNIVERSITY

Msc. In Procurement and Supply Chain Management

Research Questionnaire`

"The Role of Environmental Factors in Maize Value Chain Sustainability in Tanzania"

The Case of Iringa District

INTRODUCTION AND OBJECTIVE

Dear Respondent,

Thank you in advance for devoting your time to participate in this study. Basically, this study is for academic purposes and for partial fulfillment of the Award of a Masters of Science (Msc.) in Procurement and Supply Chain Management at Mzumbe University pursued by the researcher. I request that you participate in this study with free will and high degree of honest and openness. This is key towards achieving the intended goal of the study. No names of individuals or entities are required and strict confidentiality will be maintained in handling your responses. Individual responses will not be identified in the analysis and report of this study.

SECTION A: Respondent Demographics: Put a (√) in the Box of your Choice

1.Gender	☐	Male	**2. Age**	☐	Under 21	☐ 21-30 years
	☐	Female		☐	31-40 years	☐ 41-50 years
				☐	51-60 years	☐ More than 60 years

		☐	☐	
For Individual Businesspersons				
3. Experience in Business	☐ Less than 5 years		☐ 5 years and above	
4. Level of Education	☐ Standard Seven or Below	☐ Certificate	☐ Diploma	
	☐ Degree	☐ Masters or above	☐ Other (Specify) ……..	

SECTION B: First Study Objective

Produce Availability and Maize Value Chain Sustainability

	Statement	**Strongly Disagree**	**Disagree**	**Not Sure**	**Agree**	**Strongly Agree**
		1	**2**	**3**	**4**	**5**
5.	Maize value chain persistence is attributed and influenced by the availability of the product throughout as required.					
6.	As long as maize availability and existence in the areas cultivated is in plenty value chain will never cease to be sustainable.					
7.	The continuous availability of maize produce has kept on fostering the sustainability of value chain in the area.					

Nature of Customers and Brokers and Maize Value Chain Sustainability

	Statement	**Strongly Disagree**	**Disagree**	**Not Sure**	**Agree**	**Strongly Agree**
		1	**2**	**3**	**4**	**5**
8.	Good practices between customers and brokers in maize influence sustainable value chain.					
9.	The existing adequate relationship between customers and brokers influence maize value chain sustainability.					
10.	The existing relationship in the process between producers, customers and the brokers fosters sustainable maize value chain.					

Policy and Regulations and Maize Value Chain Sustainability

	Statement	Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
		1	2	3	4	5
11.	The legality of the activity in the country constitutes adequate sustainability on maize value chain.					
12.	Maize production and all business activities constituting value chain are in line with country's rules and regulations which ensures sustainability.					
13.	The institutional arrangement in the country is in line positively with maize production and value chain process which guarantees sustainability.					

Transport and Communication and Value Chain Sustainability

	Statement	**Strongly Disagree**	**Disagree**	**Not Sure**	**Agree**	**Strongly Agree**
		1	**2**	**3**	**4**	**5**
14.	Effective means of communication for transactions and direct correspondence ensures maize value chain sustainability.					
15.	Available means for transportation ensures sustainability in maize value chain.					
16.	The improvement in the overall means of transport and communication influence maize value chain sustainability.					

Availability of Processors and Maize Value Chain Sustainability

	Statement	Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
		1	2	3	4	5
17.	The fact that the produces are well processed and packed sounds essential to ensure maize value chain sustainability.					
18.	The processors are effective in their tasks to ensure the goods are available in plenty which ensures sustainability of maize value chain.					
19.	Availability of processors to ensure packaging of the produces ensures sustainability of maize value chain.					

20. What are factors formalizing maize value chain sustainability?

……

21. What are the role of actors involved in maize value chain for sustainability to be certain?

……

……

22. What are challenges encountering maize value chain sustainability?

……

……

THANK YOU FOR YOUR TIME