# FACTORS INFLUENCING VALUE ADDITION AMONG FISH TRADERS IN MOMBASA COUNTY

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# DECLARATION

I declare that this research thesis is my original work and has not been presented in any other University.


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**DECLARATION BY SUPERVISORS**

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# DEDICATION

I dedicate this research to my late parents Mahmud and Mariam, my wife Hadijah, sons

Mahmud, Yusuf and daughter Mariam for their understanding and support.

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I feel humbled to the Almighty for the good health, strength, courage and resources to undertake this noble task.

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# ABSTRACT

Although there exist enormous benefits that can be linked to value addition, many fish traders in Mombasa County still sell unprocessed fish and fish products. The resultant losses are due to spoilage attributable to perishability of fish and losses of additional income for lack of processing. The study was on factors influencing value addition among fish traders in Mombasa County. The specific objectives were: to determine the influence of infrastructure on fish value addition, to establish the influence of manpower on fish value addition, to determine influence of government policy on fish value addition, to determine the influence of training on fish value addition in Mombasa County. The research employed a descriptive research design and a census methodology. The target population was 76 registered fish traders involved in fish business. Structured and semi-structured questionnaires were employed. Quantitative and qualitatively analysis using frequency table proportions (percentage) was used to interpret the data, inferential statistics was used to analyze the data. The study established that the infrastructure ($\beta=.376$. $p<.001$) and government policies ($\beta=.265$, $p<.001$) have significant causal effect on fish value addition in Mombasa County. It was concluded that support towards enhancement of infrastructure is necessary if value addition is to be uplifted. The County government is an important player in ensuring that trade policies are pro- business and especially towards ensuring that they work for up scaling of fish value addition. The study recommends that state and non-state actors should come in through infrastructural development to assist fish traders to embrace and enhance uptake of fish value addition. Government agencies should re-look at the existing policies, guidelines and regulation relating to fisheries industry to ensure they are pro-value addition. Fish traders should increase their internal capabilities by adopting modern technologies and equipment to enhance fish value addition activities.

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# ABBREVIATIONS AND ACRONYMS

APPMC Asia Pacific Precious Metals Conference

DV Dependent Variable

FAO Food and Agriculture Organization

FIQA Fish Inspection and Quality Assurance

IGAs Income Generating Activities

ISUDP Integrated Strategic Urban Development Plan

IVs Independent Variables

KEMU Kenya Methodist University

KM Knowledge Management

LPM Linear Probability Model

MCS Monitoring Control and Surveillance

OLS Ordinary Least Squares

RBV Resource Based View

ROK Republic of Kenya

R & D Research and Development

VAR Value at Risk

VIF Variance Inflation Factor

# CHAPTER ONE

# INTRODUCTION

## 1.1 Background of the study

Value addition according to (Kim & Lalancette, 2013), refers to product enhancement resulting from growing in abilities, Skills, knowledge, plus other qualities the staffs have added from practice in the respective field over time. Benefits associated with value-added measurement include but not limited to given that fair estimation of that input businesses do to the production process observed within a period of time and provide more accurate estimate on the businesses effort associated with production levels and potential.

Value-added foodstuffs come in various methods that include, old-style processed products, and market-driven foods that have an increase in demand, and health-driven seafood, that is becoming an increasingly significant niche, values-added manufactured goods that is more focused on social issues, environmental issues and technologically focused  seafood products which often adds quality characteristics and health aspects to products. The advantages of value-added processing, includes extending shelf-life, conserving high quality standards, creating safer products, and improve financial returns to producer/processor (Morrisey, 2011)

Value addition can be done to, a process, a product, a service, or the whole business. Value addition can be by means of giving out better or additional services in the form

of after-sales amenities and superior customer care. Value may be equally being done by refining in some way a product, or include accessories with the product. A good example, a computers retail vendor can add value by adding computer accessories or software with the original product, the computer. Firms with forceful branding can add value by using the firm's logo to sell the product (Certification, 2018).

It is imperative in virtually all sectors where goods and services are provided, to infuse and invoke value addition practices throughout the value chain.

In agriculture value addition involves changes made to prime agricultural products such as tea that increases the product's value (Tea Board of, 2014). Value Addition encompasses any extra value infused to enhance the original state of something. This is feasible to products, service, firms, and other areas of business including management.

In this value addition would refer to the processing and packing provided to fishery resources in order to reduce waste and hence increase the final value above its initial value or raw form (IBF, 2011). (Eskandari & Zeraatkish, 2016), researched between 1989 to 2013 on the effect of value added and exports of fisheries sector on economic Variables of agriculture sector in Iran using the VAR method. The study result indicated that the variable growth related with value addition in fisheries sector vis-vis the value adds in agriculture had fluctuated accordingly. Value addition to fish is an essential strategy that enhances economic value to fish, broaden the market performance and decreases the problem of post- harvest losses in sub-Saharan Africa.

(Kyule, et al., 2014), (Mohamad, 2011)

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The value chain is divided into key activities that are involved in the physical creation, sale, transfer of goods and services to the client, and support activities which provide technology, personnel and purchased inputs and which organize the key activities (Fearne, et al., 2012). It is a scheme of firms that interact to positively impact one another's performance (Bigliardi & Bottani, 2010).

Value addition activities present an opportunity to make profits by the fisher folks at the household and enterprise levels. This translates to increased economic development in the fisheries sector. The development of activities aimed at adding value not only allows a sound economic framework to be developed or maintained, but it can also capitalize on all the resources (human, economic, cultural) present in the territory to foster sustainable local development.

Income approach or the output approach is an ideal methodology for measuring value. This approach aggregates the factor incomes derived from the factors of production. It is called the "net product" or "value added" approach. It shows the influence (value added) achieved by each producing component in the production process.

The ISUDP, (2035) proposes several strategies and projects for development of fisheries sector and to provide a favorable business environment and employment opportunities. Among these are; to improve fishery products, its handling and to reduce the level of post-harvest losses, to increase fish production from the deep waters beyond the reef, to promote fish production through fish farming, to attract commercial fishing vessels for

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landing, transshipment and access to services, to ease access of landing- sites and development of the fishery, to centralize capture fisheries operations to designated beaches and to enhance fish storage and marketing in the County.

Mombasa County has come out with Area-Based Land use strategies to be adopted up to year 2035. In this regard, one of the propositions is to promote fishing activities through provision of fish processing facilities in the Mainland South (Sector V) which will mainly affect Likoni sub-county. (ISUD Plan - Mombasa Vision 2035). The fish traders in Mombasa County are concentrated in market areas within the sub-counties mainly Likoni, Kisauni, Changamwe, Mvita, Nyali and Jomvu of Mombasa County with Kongowea being the main market within the County. The Fish traders play an important role of bridging the gap between the downstream and upstream ends of a typical fish supply chain. On investment environment in Mombasa County, one major challenge cited for lower investment in fishing industry is lack of focus in fishing as an economic activity. (ISUD Plan - Mombasa Vision 2035).

A fish trader is a person who buys or acquires fish stocks and re-sells the same for some profits in either raw form or having infused some value to help enhance the appeal of the end product. The fish traders are therefore in the forefront in participating actively in the uptake of value addition technologies and processes towards sustainability. As the situation is currently, the fish traders in Mombasa County have been experiencing constraints associated with post- harvest losses and product quality deterioration. This in essence has led to unsustainability and hence, lack of competitiveness.

## 1.2 Statement of the problem

According to (FAO, 2014) Kenya's average per capita food fish consumption was estimated at 4.5 kg in 2014. The world per capita food fish consumption has increased from 9.0 kg to 20.2 kg between 1961 and 2015. The projected estimations for 2016 and 2017 were 20.3 kg and 20.5 kg respectively. East Africa Community annual average is 7 kilograms per person and Africa is roughly 10 kilograms. In Kenya the 4.5 kg consumption level is far much below considering the nutritional worth of fish and fish products and also considering the potential of fish production in the Country. This is partly attributable to post harvest losses brought about by lower uptake of value addition practices which is significant towards enhancing palatability and economic worth of fish and fish products. The findings by (Mwirigi & Theuri, 2012) in relation to the challenge associated with value addition of seafood value chain in the northern coast of Kenya, were that there are inadequate facilities to undertake value addition.

Given the challenges faced by fish traders, in relation to handling and processing of fish and fish products, value addition and enhancing the value chains is necessary towards reduction of post-harvest losses. Many fish traders in Mombasa County sell their fish products unprocessed and with little effort in value enhancement this leads to losses brought about by the perishability nature of raw fish. They also suffer losses attributable to forgone opportunity in terms of additional income. The study therefore sought to answer the question: Which factors influence value addition among fish traders in Mombasa County?

## 1.3 Purpose of the study

The purpose of the study was to identify factors that influence value addition among fish traders in Mombasa County.

## 1.4 Objectives of the Study

### 1.4.1 Specific Objectives

i.  To determine the influence of infrastructure on value addition among fish traders in Mombasa County.

ii.  To establish the influence of human capital on value addition among fish traders in Mombasa County.

iii.  To identify the role of Government Policy on value addition among fish traders in Mombasa County.

iv.  To determine the influence of training on value addition among fish traders in Mombasa County.

## 1.5 Research Questions

The following were the research questions of this study;

i.  What is the influence of infrastructure on value addition among fish trader's in Mombasa County?

ii.  How does human capital influence value addition among fish traders in Mombasa County?

iii.  What is the influence of Government Policy on value addition among fish traders in Mombasa County?

iv.    What is the influence of training of fish traders on value addition in Mombasa County?

## 1.6 Justification of the Study

This study aimed to establish whether fish traders in Mombasa County are involved in fish value addition, the factors determining value addition and also describe the value chain strategies applied by fish value chain actors. It will help identify the key areas in fish value addition and the gaps and challenges faced in fish value chain.

By determining the influence of infrastructure, manpower, government policies and education levels on fish value addition, the study will identify the constraints encountered and the aspects to be considered towards up scaling fish value addition among value chain actors. Policy makers are expected to identify mechanism of streamlining the legislations thereby help value chain actors benefit through product diversification and increased incomes. The study should positively impact on poverty eradication, employment creation and product quality necessitated by increased uptake of value addition technologies and processes towards food sustainability.

## 1.7 Limitation of the study

Limitations in relation to the time to undertake the study was experienced thereby impacted on the ability to adequately cover the study area as anticipated. With technological advancements and need to improve food quality and availability over time, the area of study is in itself dynamic. Cooperation from respondents also became

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a challenge. This arose because some of the respondents feared to disclose guarded secrets on business operations. The fear of such information leaking to competitors was therefore real.

The study was on small and large scale fish traders within the six sub-counties of Mombasa County and explored the parameters that influence fish value addition. The focus on small and large scale fishers was necessary because of need that the researcher felt to identify uniqueness and diverse technologies in fish value addition practices embraced for food security and sustainability within the subgroups.

## 1.8 Significance of the Study

The fishery sector is one of the important contributors to food security and poverty alleviation in many developing nations (FAO, 2012). The sector is a major contributor to the economies of the coastal region in generating income, employment, and foreign exchange incomes to the, fish farmers, fishing communities, fish traders, and fish processors. In addition, the sector also supports approximately 80,000 Kenyans directly and 800,000 indirectly (RepublicofKenya, 2008). This study identified the factors that influence fish value addition among fish traders in Mombasa County and the findings of the study were anticipated to assist the fish traders and sector players to improve on value addition activities the activities within the value chain and hence become competitive thereby impacting on their lives and those of their dependents. The findings are important to fisheries stakeholders and players as a source of useful information for decision making purposes. It is expected that the findings will also provide an invaluable

source of information to those interested in establishing businesses within the fisheries sub-sector.

For the consultants and other actors within the sub-sector, the study will be a source of knowledge that could be used to provide assistance to individuals and organizations in addressing challenges associated with fish value addition. To the business owners and the key players within the value chain, the findings shall help to develop and upscale value addition strategies in their enterprises. The findings of the study can be used as a basis of other research studies in value addition. The academician shall also benefit from the findings and use the same as an invaluable source of reference.

**1.9 Assumption of the Study**

According to Simon (2011), assumptions are items or factors that the researcher has no control over but if allowed to disappear the study may not make much sense. They show the ability of the limiting factors to affect or not to affect the study outcome.

The researcher made assumptions that the subjects involved in the study were going to voluntarily and willingly participate in answering the questions truthfully. The researcher also assumes that the respondents had some knowledge on the subject matter and that the information received was accurate and consistent hence reliable. The study also assumed that the subjects' responses were adequate and showed consistency views thereby in a readily available form for easier analysis and interpretation of the data and hence draw necessary conclusions.

## 1.10 Operational definition of terms

**Value Addition:** Is a change in the state or form of fish by way of processing or further processing to improve its value and offer it to an expanded customer base for enhanced producers income or revenue.

**Factor influencing value addition:** A fact or situation that influences the result of something e.g. infrastructure, manpower, government policy and education level

**Fish Traders:** A person who buys and sells fish and fish products e.g. large, medium and small fish traders.

**Large fish traders:** these are traders operating on large scale and have invested on huge structural capacity. They mainly deal with high end customers.

**Medium fish traders:** these are traders who own fish processing facilities and shops and operate on medium scale. The volumes traded are also significant.

**Small fish traders:** these are small traders or small institutions or individuals whose trading volumes are quite low. They also deal with low end customers.

**Government Policy:** is any declaration, plans and/or intentions by government through by way of statute or legislation which become enforceable and might have some ramification on business and trade activities upon operationalization.

**Human Capital:** Is the skills, knowledge, and experience possessed by an individual or population, viewed in terms of their worth or cost to an organization or country.

**Infrastructure:** These include but are not limited to elementary physical structures and organizational facilities and facilities like roads, buildings, Power supplies etc. necessary for business operations in a society or enterprise.

**Training:** the action of imparting knowledge and skills thereby increasing literacy

level.

# CHAPTER TWO

# LITERATURE REVIEW

## 2.1. Introduction

This chapter reviews the existing literature. It analyzes relevant theoretical discussions based on the study constructs and gives a diagrammatically expression in a conceptualized framework.

## 2.2. Theoretical Review

In the research the assumption is that the value add activity is influenced by the expected value add benefits accruing from the end product which is manifested through skills, knowledge and efforts infused in the preceding processes whose value, leads to increased income generation and competitive advantage. The expected end result is created in a complicated yet appreciable framework expected to maximize the utility ability of the ultimate product. The end result brought about by the noble decision of adding value can be weighed in consideration of the benefits accrued at both the micro and macro environments. Business therefore, only engage in value add decision where the perception of the resultant benefits from the exercise outweighs the no action stance. Owing to the fact that utility may not be directly observed, the trickle-down effect can be felt by the value chain actors and the wider economy. In this respect, the decision made of whether to engage in value add or refrain from the process will be the ultimate game changer.

The study is therefore hinged on what the researcher considers as the relevant theories which determines where the action taken to add value can in itself efforts necessary for accrued in the process towards realization of value by the value chain participants.

**Resource Based Theory**

This theory is of the view that the heterogeneity in the market place environment arises from the diverse resources and abilities possessed and unleashed by the various competitors in the wider market to create competitiveness. This diverse capability is what creates the berth experienced among would be close competitors. This theory basically postulates that the organization resources both capital and no-capital can determine the ultimate competitiveness and comparativeness of the organization. These if well harnessed considering the firms' commitment and positioning in the market place, can result to the firm becoming a major force to contend with. Towards this end, it is the ability to harness the available resources in relation to human, finances, machines, and methods that can promote an organization towards realizing the resultant benefits towards realization of the wider organizational objectives.

The resource-based view is a critical idea in strategy because it suggests the potential to elucidate on sustainable competitive advantage, or the delivery procedure of long run returns to shareholders (Toms, 2010). The end benefits might be realized by availing the much needed resources emanating from the positioning of the organization in the market place including its dominance and strong brand created over time which cannot be easily replicated and manipulated by competitors but a way of creating a long

standing and formidable existence in the market place. This helps to outdo the impression that exists and in itself bring about heterogeneous environment.

The resource based theory focuses on how inbuilt abilities and distinct disparities can be embraced and internalized to create the much needed competitiveness. in this regard, the organization is in a position to identify its key strengths and use it dominantly towards outwitting its rivals in the market place. The strong identity thereby created by the firm can be used strategically towards increasing its dominance and stamping its authority accordingly.

The key objectives of value chain management are to capitalize on gross revenue and sustain it over time. Supply chains are apprehensive with what it costs and how long it takes to present the good for sale. The supply chain management main objectives are to decrease the number of links and to reduce friction such as bottlenecks, time to market and costs incurred, etc. Good supply chain is vital to develop a value chain (Mwirigi & Theuri, 2012). Firms are considered to have created value when they outwit their competitor's aptitude to take care of customers' needs and wants while at the same time working inwardly towards realizing their financial freedom. By achieving the objective of the financial muscle this translates to increased shareholders' wealth and in essence is a major achievement from a firm's perspective. It is paramount that those entrusted to increase and take care of the shareholders' wealth ought to use available resources optimally and in a strategic fashion in identifying the precise markets and opportunities to avail the much needed wealth going forward.

Ideal strategies necessary for small businesses are those that focus on innovation and development of new market (Watts et al., 2008). Small firm are those that are concerned with development and market development. It is in this context that value addition meant to improve the characteristic of a product come to fore. As it were, this strategy helps in creating superior products than those presented by competitors in the market place. By developing new markets for its products or engaging in product or service innovation for its consumers, the firm can increase its business empire by diversifying through creation of elaborate business opportunities.  But according to (Carter et al., 2008) this theory tends to be monotonous if the firm that boasts of exceptional competitiveness is unable to describe its capabilities without making reference to its own existing utilities.

The implication: RBV framework helps to determine the ability of internal competencies of an enterprise to utilize its in-depth potential to gain necessary advantages in the market place compared with its competitors in the same industry. The internal resources possessed under ideal circumstances, come in handy to create the much needed edge for the firm.

 **The Value Chain Theory**

The value chain analysis basically entails actions that takes place at the precincts and at the surroundings of the organization and compares and analyzes the same with in determining the ability of the organization to compete effectively in its industry. It sizes

each value add activity within the organization in determining the effectiveness of each action in attaining overall organization objectives.

The value chain concept was developed on the idea in which the firm was considered in relation not just of the few resources it is associated with but beyond these. It therefore focused on how the resources can be harnessed and used systematically to achieve desire ends. With the systems approach as the underlying principle, the concept harmonizes available resources and synchronizes the end result or product to suit the needs of the customer satisfactorily. With this in mind the end user is in a position to spend given the resulting value to be accrued.

The value chain analysis was developed as an instrument for finding the value of each production process step, in a move to find various sources of competitive advantage. The argument as stipulated by (Nang'ole & Franzel, 2011), in relation to competitiveness is that it cannot be identified by having a glance at a firm but by identifying the sub-sects of the various elements within which the firm is composed. By doing this, it will be possible to tell whether a firm is competitive or not.

According to Nang'ole and Franzel (2011), it was proposed by Porter that as a substitute of competitive advantages, the value system should be used in this regard. This approach of value system entails the various processes undertaken by enterprises engaged in production of services and good where the activity starts with unprocessed materials as inputs to those that concentrate in deliverance to the end user. The value system concept is therefore quote robust when you compare it to 'enterprise value chain' (Van den Berg,

et al., 2009). According to Porter, value system is a concept that is used extensively by the management in making key organization decisions. According to Porter it is evident that value chain analysis is restricted to an organizational perspective, and it does not focus in analyzing the upward and down end processes which are not in the control of the organization.

Value chain analysis is made up of main activities directly associated with the organization's processes and other rudimentary activities which are involved in supporting and sustaining the main activities. These main activities include but not limited to human resources, Research and Development, procurement, finance and planning. According to (Van den Berg, et al., 2009), the main actions are directly involved in value add in production of goods and services while the support functions indirectly impact on the end product with value inputted. To incorporate value chain activity, it requires a set of guiding tenets. (Nang'ole & Franzel, 2011) In the process of analyzing value chain process, itemized the guidelines into four key stages. These include: Appraising of value chains and associated information e.g. conducting surveys for purpose of describing the value chains and produce sub-sectors, identifying the products, areas of operation, and associates, comprehensive marketplace scanning and examination of data; Designing of mitigations for performances and technologies improvement of value chain, Implementation process, institutional innovations, and policies, and finally, engage in monitoring and evaluation. Based on the issues raised, value chain analysis is an analytical instrument that can used be to augment and

contribute to consistencies for ensuring enhancements of the entire system hence contributing to its efficacy in achieving the overall organizational objectives.

In this study, a strong value chain concept will help to determine if the company can be in a position of engaging in creation of value and be in competitive enough in a value chain or several value chains. Those vested with the task of value addition are able to identify areas of value addition in the production line and areas requiring improvements for purpose of achieving this feat.

To analyse the internal firm's activities, value chain analysis is used in this respect as a strategy tool. It is mostly used to recognize those activities which are most valuable in terms of cost or differentiation advantages to the organization and to determine those that need to be improved so as to gain competitive strength against close competition. In relation to value addition activities, several of the value addition processes can be undertaken from the very basic traditional methods to the modern ones.

According to FAO, (2014), the value chain has the ability to bring about enormous net income than a supply chain, but it cannot exist without the support of the supply chain itself. This is because it is upon products being supplied through the system that value can be added.

Value Chain Theory can be used to determine whether there is need for up scaling or improving on the traditional methods thereby increasing value and competitiveness. In

the long run, it provides an opportunity to benefit through product differentiation and product diversification.

The implication of this theory to the study is that it takes a holistic approach that is able to identify underlying reasons for value chain players not to adopt and engage in sustainable value chain development in food processing. In this regard, this is captured through interrelated principles which are broadly categorized into: measuring performance, understanding performance and improving performance.

## Human Capital Theory

This theory came to fore during the advent of classical economics in 1776 and thereafter a scientific theory was developed. Schultz upon manifesting the concept as a theory, acknowledged the human capital theory as a significant factor in the modern economy able to propel national economic growth. According to (Severine & Lila, 2009), this theory postulates that the formal education of a person is able to determine his or her earning ability. The idea behind this emanates from an observation which states that certain qualities are developed by people through schooling. The qualities developed can help jump start economic developments and hence economic growth. Certain authorities believe that investing in human capital is akin to investing in other means of investments just as it would feature in the development of a factor of production. In spearheading Becker's work further, Theodore Schultz, an economist, mapped how rates of return from education in countries with different levels of income, different attitudes to forgoing earnings to develop human capital could be calculated (Severine & Lila, 2009). This theory upholds that it is the important competences, knowledge, skills,

and capabilities of the workers are the ones responsible in contributing to organizations competitive position. The theory shifts attention from other areas to human capital development, and reward practices and schemes. In relation to the human capital theory, education is considered an asset owing to the fact that it is considered that it has the potential to positively impact on both social and private fronts.

Human capital refers to the expertise, knowledge, and skills one amasses through training and education (Severine & Lila, 2009), 2009; Marimuthu et al., *(*2009); Dae-bong (2009); Malose and Boris (2012); (Armstrong, 2006). Human capital theorists have over time believed that education and earning power have some correlation. This in theory means that, the more education one has acquired, the higher the ability for one to earn and more so knowledge, abilities, and skills, that education presents can be translated into the workplace in form of production. According to (Armstrong, 2006), as quoted in Odhon'g et al., (2013), the theory of human capital can help determine one's impact in a business environment and their value add activity and contribution to enhance shareholders' interest. This can be used for example, to demonstrate how a function like HR can help produce value in a typical work environment by focusing on contributing to return on investment.

The implication of this theory is that investment in human capital can go a long way in translating prior expertise and knowledge to add more value which is long term in nature in an enterprise thereby contributing immensely towards realization of shareholders' interests.

**Sustainable Resource Theory**

The theory is more concerned with long-term versus the short-term agenda. In essence it is concerned with how limited resources can be harnessed so that immense benefits can be accrued. Thurow (1993) predicted that in the future, sustainable advantages would be dependent on technological endowment and on technological process development as opposed to technological product development. Going by this observation, future industries would be dependent on brain power. Towards this end, competitive advantage was going to be driven by brain power to replace the comparative advantages associated with natural resources or historical endowments. Sustainable resource management refers and is understood to involve attaining the immediate needs of the present-day generation without curtailing the capability of the future dependents of fulfilling theirs. In this regard, the focus is normally on continuity looking at various key fronts associated with social, economic and environmental facets. The aspects mentioned and commonly identified as the three main pillars of sustainability and in other circles are informally understood to refer to people, planet and profits.

In this regard for an enterprise to meet the threshold of being considered to be sustainable, key parameters hinging on the internal and external influences have to be considered. Thereafter, commitment towards realizing meaningful engagement which is conscious of the facets of business environment and corporate irresponsibleness has to be embarked on.

In corporate world, corporate sustainability has become a buzzword and has been recognized as a parameter used for measuring abilities with focus cutting across the

board regardless of the size of the enterprise. In this regard, major corporates have been put to task to prove how their commitment in the creation of goods and services in a manner that can be considered to be sustainable. In the current corporate world, corporate sustainability in investment is believed to fall under the environment, social, and governance (ESG) or socially responsible investment (SRI).

The environmental pillar has of late been given more cognizance with focus being on how carbon emissions could be reduced, how packaging related waste could be minimized, and sustainable usage of water resources. This can be looked at in relation to the general effect subjected on the environment. On this front, companies have realized that when the beneficial impacts on the planet and the financial benefits are measured, there is a great positive correlation. Lessening waste and usage of some products has shown merits in ensuring a more efficient and effective supply chain and overall benefits to industries. With regard to the social pillar, it has been elucidated in corporate world that a business should be supported and approved by its employees, the community it operates in and the stakeholders. This support should therefore be sort and approved by considering and taking cognisance of the welfare of this employees. Practicing good neighbourhood and by being a member of a community both locally and in the diaspora is therefore of essence.

The economic pillar which focuses on profitability comes with a rider. In this regard, the theory postulates therefore that the economic pillar does not mean amassing profits at any cost. In essence, it therefore means that there should be some considerations even when profit making is an objective of an enterprise. In this respect, key activities under

this pillar should focus on compliance, good governance and risk management. For the same to hold, it is become a common practice that the same should be replicated in the entire supply chain. The theory is therefore used purposeful because it implies that by investing in human capital it must add value through creation of a sustainable and long-term economic growth. (Swanson & Holton, 2001).

**Skill Acquisition Theory**

A skill refers to the ability acquired which can help perform a given task as opposed to competencies and mental abilities. According to (Trofimovich & McDonough, 2013) a skill denotes to a repetitive cognition in which previous knowledge to exact language in form or sense facilitates the speakers' succeeding language understanding. The scientific genesis of the skill acquisition theory is identified with the branches of psychology. This varies from behaviourism to cognitivism and connectionism (Dekeyser & Criado, 2013). The model borrows from Anderson's Adaptive Control of Thought (ACT) model which is a kind of cognitive stimulus-response theory (Ellis & Shintani, 2013). According to (Chapelle, 2009), this specific theory is classified under the category of general human learning. It allocates roles for implicit and explicit learning and is a concerned with general theory of learning. The theory states that adults start leaning something largely through explicit processes. Over time and with continuous and adequate exposure and practice develops to implicit levels. The development along this theory entails utilization of declared knowledge; this culminates to the next level of procedural knowledge and later automation.

As postulated based on implicit and explicit processes or learning, learners adopt rules explicitly and develop sensible awareness of those guidelines. To embrace automation of procedural knowledge calls for implicit processes or learning. The learners start to go through the procedural of explicit knowledge that they possess and from the situational practice the behaviour becomes part and parcel of them. The theory recognizes the importance of training as a variable in the study. It will come in handy to address the importance of training for the value chain actors and how it influences value addition processes.

## 2.3 Empirical review

### Influence of Value Addition among Fish Traders

In a study undertaken by (Alam, 2016), on supply and value chain of fish in the super-shop outlets. In the finding was that super shop fish corner buy fish from wholesalers/ paikers, agents or suppliers and resell the same to ultimate affluent end user consumers. The role of the super shops was to acquire products and display the same in a manner that is more attractive and safe forms and which are considerably convenient for middle class aesthetic end users to purchase. They act as the last link of intermediaries in the channel of value added fish marketing before the city dwellers. According to this finding, upend shop chains in Dhaka had necessary facilities and equipment for preservation and hence sell good quality fish in comparison with those that are availed at the general fish markets at between 20-25% over normal price. The marketing profit and marketing margins were higher in upend, when compared with other players in the

downstream activities, owing to exorbitant management costs of business operations associated with the upend shops.

According to Salagrama (2015) in his study on opportunities in relation on strengthening value chain of small scale fishers he deduced that infrastructure is an important enabler towards enhancement of value addition. According to him, infrastructural challenges led to various outcomes. Among these are: long chain of market intermediaries, long delays in market access; and lack of control for the value chain actors on issues related to markets or market information. Such conditions have contributed to substantial losses which are both quality and value related. Also according to (Akanbi, 2016) in a study conducted on value chain analysis and its performance on small scale agribusiness featuring fish farmers at Kwara State, the outcome of the findings form majority of respondents indicated that major constraints limiting the fish farmers production included but not limited to inadequate credit facility, poor quality of water, problem of poor access to electricity, and lack of government support for fishing input acquisitions. With constraints facing the marketers the major constraints feature issues to do with transportation, inadequate capital, inadequate basic infrastructure, product spoilage, lack of market information and price fluctuation.

According to a study conducted by (Mwirigi & Theuri, 2012) in relation to the challenge associated with value addition of seafood value chain in the northern coast of Kenya, the findings were that there are inadequate facilities to undertake value addition. Marketing channels available also are insufficient and with fairly weak linkages. Most

fishermen have no access to international markets; there is ignorance on prices and inadequate information on market opportunities, customer needs and trends. The chain, owing to very little linkages in the value chain notes is also significantly underdeveloped. Furthermore, along the various points in the chain, there is very little value addition. A bigger number of the seafood products sold are in their raw forms.

In the study conducted by Hempel (2010) on the fisheries sector value chain analysis in Africa the findings indicated that owing to lack of iced and cold structures there was a constant rise in deterioration of tilapia quality. The conveyance route inside DRC is also considered prohibitive for trucks and reefers that are insulated. The issue of inadequate storage facilities also brought about limitations thereby reducing marketing period for produce to period of less than 24hrs. According to (De Silva, 2011), in his study on value chain of fish and fishery products and the application in developed and developing country markets, the findings indicated that there was urgent need to introduce coolers and improve ice distribution systems in order to minimize post-catch losses. Further to this, it also indicated that proper harbors, landing sites and markets would be an upgrade plan that could stimulate value chain growth.

In a study by Ntale J.F. and Mphande O. M., (2014) on Kiambu and Muranga featuring indicators of value added agri-business on small farms, the findings according to the marginal effects of the predictive models namely; LPM, logit and probit models, distance to market is the major determinant of value addition among farmers. The OLS results (LPM model parameter estimates) showed that with every kilometer increase on

the distance to the market, it increased value addition by 1.49% (t = 5.73), while in the logit model with every increase distance in kilometers to the market increases the probability by 0.69% (t = 4.18) for a farmer in adding value to farm produce and in the probit model by 0.8% (z = 4.81). This implies that the further the farmers are from the market, the more likely they are to have granaries for their agricultural produce. Most farmers in value addition utilize granaries predominantly as their value addition mechanism. The study results for LPM also indicate that having electricity increases the probability of value addition by 7.4% (t = 2.79). Similarly, the marginal effect for the logit is 4.79% (z = 1.84) while the marginal effect for the probit is 54.3% (z = 2.3). The results therefore, concur with Ntale (2013) observation that the cost of power is way above the reach of the rural folk and therefore, value addition in agriculture will remain a mirage if the issue is not addressed.

According to Odoyo (2013), in a study conducted in Bureti District Kenya, on impact of access to agro-processing technologies, the findings indicated that cost of agricultural manufacturing equipment was considered a factor that constrained the establishment and expansion of smallholder agro- processing businesses due to un-affordability. Eighty (80.0) percent of agro-processing respondents experienced reduced rate of growth in the number of income generating activities engaged in agro-processing owing to the high costs of manufacturing equipment. The diversity of equipment was limited to 6 major types of agro-processing tools included those used for crushing, slicing, thermal preservation, sorting, packaging and non-thermal preservation of agricultural produce. Diversity of processing equipment impacted positively on the number of agro-

processing IGAs with 60.0 percent of farmers experiencing speedy rise in number of agro-processing units set up. There was a significant link between distances to agro-manufacturing equipment sources and the number of agro- based income generating activities units established by small scale farmers. The shorter the distances to manufacturing equipment sources the more positive the impact of the number of income generating ventures compared to long distances. Sources within radius of 50 km had the highest impact with 70 (53.8 percent) followed by sources 50 to 100 km away with 10 (7.7 percent).

**Influence of Human Capital on Value Addition**

In a study conducted by (Kizito, et al., 2017) in Nairobi County on ventures within value chain featuring the participation of men and women, the findings indicated that distributors played an important role in the fisheries value chain. It was noted that these distributors availed fish and fisheries products from the source through the distribution channel to the end market. It was also revealed that there are majority of men compared to women, engaged as distributors within the fisheries value chain.

In terms of opportunities as distributors, the study established that men have better chances to participate as distributors. This was owing to the fact that men had access to credit facility offered by microcredit and formal credit lending establishments to engage in competitive entrepreneurial value chain. Further this study also came out with the findings that the reasons why as many women as men are not in distribution owing to the issue of informal institutions and socio-cultural issues such as patriarchy, traditions and customs. This in essence has confined women to domestic tasks in their households.

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Bureaucracies and access to critical entrepreneurial transportation related information was also cited as an impediment experienced by women towards achieving distributorship status. In the selected scope of study, the results also revealed that more women than men were involved in activities of grading, sorting and cleaning. These activities were considered as post- harvest processes and women featured prominently. Considering these roles with their reproductive selves and responsibilities, were lower end value chain undertakings with marginal capabilities for economic promises. Reasons cited for the dominant role of women in this category of chores had to do with allocation of role and the division of labour within the male-controlled society where societies where gender was the determinant factor. The study also revealed findings that cultural connotations and beliefs have been used to limit women abilities to post-harvest activities which encompassed processing, fish handling and cleaning within the value chain.

In a study conducted by Mwirigi and Theuri (2012) at the Kenya North Coast on the challenge of seafood value chain, their finding was that health and safety measures have mostly been given lip service across the chain. For instance, very little has been done to train operators within the chain on critical areas such as safety while fishing and hygiene during seafood processing. Efficiency also continues to be a major challenge in the entire chain in North Coast. In a study by (Hecht & Waldhart, 2011, September), they identified that effective implementation of knowledge management is a process that has three stages which include adoption, acceptance and assimilation. Also according to Barrick (2011), he made comments on knowledge as a body of information, he also

indicated that it is usually of a realistic or procedural nature, and is about a specific domain that makes for successful performance of a task. Ryle (1949) on the other hand, created a distinction as cited in (Armstrong, 2006). The distinction identified was between knowing how' and 'knowing which was defined in clearer terms. In his definition, he indicated that is the aptitude of a person to perform tasks is the knowing how, and holding portions of knowledge in one's mind is knowing. Towards this end, knowledge management was defined as a process that transforms individual knowledge into organizational knowledge.

In a study undertaken by Jelena, et al., (2012), on the impact of knowledge management on organizational performance, the objective was to demonstrate that by creating, accumulating, organizing and utilizing knowledge, organizations can in a position to enhance organizational performance. The impact of KM in this study was empirically tested using structural equation modelling. With a sample size of 329 corporations with more than 50 employees in both Slovenia and Croatia, the findings showed that KM practices measured using organizations information technology and knowledge, have an optimistic effect on organizational performance.

Josan (2013), also conducted a study to analyze the relationship between human capital and organizational performance. The study identified that organizational efficiency is characterized by competitiveness, excellence and innovation. It revealed that competitiveness depends on skills & human capital investment. Human capital

investment on the other hand is characterized by investing in health, training and global education. According to her, globalization has resulted in new-fangled economy identified as knowledge economy, in which human capital variables of training and education plays a critical role. From the current literature, an analysis was done indicating that investment in human capital is directly proportional not just with the organization's, trainings increases productivity and profitability by 16%. A double rise of the size of the wages increased because of trainings was witnessed in materials. A conclusion was drawn that in strategic triangle of human capital strategy, human resource strategy and business strategy was the most critical component.

In a research conducted by Odhong e.t. al., (2015) on effect of human capital investment on organizational performance, the estimation results of the research indicated that there was positive relationship between knowledge management and organizational effectiveness. According to these results, the coefficient of the variable was found to be 0.389. The implication of the findings was that the coefficient of the variable was positive and the level of significance at 1 per cent level of significance was statistically significance. The results matched those of (Rasula et al., 2012) whose findings also indicated a significant relationship between knowledge management and organizational performance.

According to Ogola and Wanjau (2013) in a study focusing on the leather industry in Kenya and that sought to identify the factors affecting value addition in this sector, the

findings indicate on-job training was the predominant way in which 36.6% of leather manufacturers acquired their leather processing skills, whereas a 30% qualified at the Leather Development Centre. These concurred with earlier findings made by (Ohge, 2004) whose finding was that most tannery employees started as labourers and learnt their skills on the job. These results imply human capital development is paramount and should be strongly embraced. The key actors should therefore put emphasis on adopting the strategy of human capital development as a way of taking care of both off-site training facilities as well as on-site training. In this same study, the findings also revealed that on matters quality control, 43.3% of the respondents were of the opinion that more emphasis should be put towards building workers' capacity if product quality was to be realized. These findings concur with studies done by (Muthee, 2008) whose findings indicated that more weight ought to be put on capacity building, favourable policy and investment, in the prevalent production process if quality of leather was to be improved. Emanating from these findings, small and medium enterprises in the leather manufacturing sector have no choice but to work towards producing quality products that can match those offered in the global market.

In a study by Mehdi (2011) conducted in Iran to establish the effects of human capital on agricultural sector, the findings indicated that human capital coefficient in agricultural sector is positive. This shows that agricultural value added growth will increase by 0.17 per cent with every 1 per cent increase in years of educated labor. The analysis on agricultural value add clearly indicates that human capital plays a crucial

role in this regard.  According to Furtan and Sauer (2008) in his study on the determinants on performance of food industry, the findings indicated that high quality human capital had an important role and this is reflected on the strong positive influence of staff education levels on value addition. The consistency is also evident and consistent with outsourced labour whose influence is negative and therefore shows a commitment to "knowledge-based" industry. This is very consistent with the negative influence of outsourced labour, and indicates a commitment to "knowledge-based" industry. This showed consistency with regional networking amongst other firms. The results indicate that Danish firms employ sector of dairy and wholesale and educated employees to deliver value add.

**Influence of Government policies on value addition**

According to Theuri (2015) study on strategic management determinants of value addition in sea food processing, the findings indicated that corporate policies had statistically significant effects on value addition. This study findings are consistent with the findings of (Muthee, 2008) studies that featured Butchery Agribusinesses in Igembe North District in Kenya and evaluated the factors that influence value addition. In this study it was found that despite value addition in the leather sub-sector being well known in the national policies, putting this into practice was still a big challenge. With these encouraging findings, the onus is on those responsible of running the sea food industry to carry out awareness campaigns to educate the independent food processors about the demands available in the international markets so that they can strive to produce quality products that can achieve wider acceptance internationally.

According to Kumar A. , (2010) in their study on domestic fish marketing their findings indicated that state and non- state actors had hatched schemes that was assisting fishermen market their catches more efficiently. Among services offered by these groupings towards managing the distributive end of the supply chain entails the provision of vehicles used in transportation of fish from landing sites to the market centres, fish processing, marketing and preservation facilities like dressing knives, utensils, fish kiosks and insulated boxes among other things. At the national level, several organizations have been set up to promote the fisheries sector and help the fishermen accordingly. These organizations set up at the national level include; National Federation of Fishermen's Cooperatives Ltd, National Cooperative Development Corporation and the National Fisheries Development Board. All these have been established as special purpose vehicles to pursue fisheries related activities to promote the livelihood of the fisher folks.

Further findings were that according to the APMC Act of 1966, fish is not a notified commodity. Owing to this, it has led to fishermen being exploited by commission agents who have capitalized on the existing desperation. This in essence has brought about disparities in the common practices that are in force. For example, in some agricultural commodities, commission charges are paid by traders while in fisheries, all commission charges are payable by the fishermen themselves. The resultant effect is that this reduces

the profitability accrued form fisheries activities thereby rendering fishing as a non-viable venture.

In the Republic of Kenya (2013) Fisheries MCS report on capacity building by the Ministry of Livestock and Fisheries Development it states that the mandate of Fisheries Department as stipulated in the Fisheries Act (Cap 378) and the Maritime Act (Cap 371) is that it manages the fishery resources in Kenya. The Acts authorizes the Ministry to undertake the management, exploration, utilization, exploitation, conservation and development of fisheries resources. It also provides for the Ministry to undertake maritime and fresh water fisheries research. Mission of the Ministry is to ensure the sustainable management and development of fishery resources and products in the country for socioeconomic development (Republic of Kenya, 2013).

The Fisheries Act (Cap 378) through the Minister's approval allows the Director of Fisheries, to make available regulations that support the development of fisheries in Kenya. The National Oceans and Fisheries Policy approved in 2009 drafted an agenda for improvement in fisheries sector. Owing to the fact that the status and progress of national laws is not reflected in the international legal and institutional arrangements, the policy document underscores the need to develop a comprehensive, modern legal and regulatory framework for fisheries management. In a study conducted by (Mwirigi & Theuri, 2012) at the Kenyan North Coast focusing on the challenges of value addition in the sea food value chain, their finding revealed that seafood value chain is largely

unregulated. This has led to exploitation at various levels of the chain. The finding also reveals that government is not able to adequately provide services that the chain requires to thrive. Owing to this, it is not able to optimally reap from taxing the chain owing to lack of proper regulation of the chain.

De Silva (2011) in a study on value chain of fish and fishery products, and documented his observation that the main concerns bedeviling the development of value chains in developing countries includes; reduction of power imbalances in the governance structures, solidifying the weak financial structure, need to focus more on formal financial systems, low political intervention in community level organizations, and resolving environmental and socio-cultural concerns. In a study conducted by (Ogola & Wanjau, 2013) featuring factors affecting value addition in the leather industry in Kenya their findings on value addition indicated that in their production of leather products they were involved in value addition to a great extent. Muthee (2008) on the other hand, found that value addition was well organised and recognized in the national policies as far as the leather sub-sector is concerned. However, there was little that had put in place in terms of practice. According to the findings it was necessary for those in authority to take charge and undertake an awareness campaign to educate the leather manufactures on the international market demands. This could go a long way to help produce products which are internationally acceptable.

In a study conducted by PrasannaRaravi and Timmanagoudar (2014) on government policies and regulation factors impeding on the performance of small and medium

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enterprises, the findings indicated that there was a positive correlation between internal factors and external factors on growth of organizational performance. It further indicated that key internal factors like inspection methods, product legal proceedings and rules and regulations in the industry ought to be properly structured and prepared if good market and financial performance was to be realized. These factors were identified to be intertwined with government policies. The output performance of the SMEs was also found to be dependent on external factor such as recurrent change in tax policies and bureaucracy. Government policies and regulation factors were therefore fund to have direct or indirect confined effect on the performance of the SMEs especially in the Hubli-Dharwar regions.

**Influence of Training on value addition**

In a study conducted by Mamo, et al., (2014) on factors influencing urban and peri-urban dairy producers, the findings were that education of the household head directly had a positive influence the likelihood of participation in value addition and significantly impacted value addition activities by at a 1% significant level. The marginal effect values showed that with every addition of age and with every increase in schooling level it increases the level of involvement in value addition of the concerned by 0.3 and 1.2% respectively. Also in his study, (Kumar A. , 2010) featuring milk marketing chains in Bihar, the researcher observed that, experience in milk trading, education, and sole dependence on milk trading for livelihood had a positive effect on the traders choice to engage in milk value addition. It also supported the effect of education on value addition.

In a study undertaken by Kariuki, et al., (2015) with a focus on value addition and performance in informal dairy enterprises in Kenya the findings arrived at was that dairy sector was a key contributor to employment. The job opportunities tilted more especially of women, who were found to be more than men operating the milk bars. The benefits accrued through milk value addition by women were found to be more than for the men counterparts. This indicated that interventions made through training on value addition to milk had likely created a huge impact to women compared to men. These key findings have had implications on the achievements on the realization of the of the sustainable development goals (SDGs) with regard to empowering of the women and inclusivity in relation to economic growth. It has also seen women engaged in meaningful productive ventures as a way of employment creation thereby leading to alleviation of poverty.

According to Olorunfemi, et al., (2017) In a study on training needs of fish farmers on value addition initiatives in Kwara State, Nigeria, the findings indicated that participation in value addition ventures especially in fish farming was still very low in Kwara. Towards this, it was found that the high number of fish farmers had limited or no training on fish farming practices and owing to this there was low level of fish value addition uptake thereby limiting the abilities of the fish farmers in benefiting from value addition initiatives. The end result is low income from fish farming related endeavors and impoverished communities.

In a study by Thomas and Feldman (2009) conducted to establish relationship influence of education on job performance, it provided an opportunity to determine the level of relationship between job related dimensions and education level. In the study, 9 dimensions related to the study constructs were identified. Among this job behaviors representing task, citizenship, and counterproductive performance were identified. The results indicated that education levels apart from positively influencing core task performance, also positively impacted on the creativity and citizenship behavior. It also indicated that education levels negatively impacted On-the-job substance use and absenteeism.

Elnaga amd Imran (2013), engaged in a study with the need to determine the impact of training and development on organizational performance. The findings were to the affirmative that training and development of human resource was critical and ought to be given cognizance especially with the changing dynamics in the new world order. With the emerging issues and the ever changing circumstances, it proved necessary for human resource to be well endowed with necessary knowledge. Keeping the workforce relevant at all times was found to be a major requirement for purposes of ensuring that they are up to date. This was found to be a major ingredient in enhancing overall success of the organization. The research conducted by (Elnaga & Imran, 2013) also supported this finding. Their research on the effect of training on employee performance affirmed this proposal that training had a positive and quantifiable impact on employee performance.

Hacksaw (2015) research study was undertaken with an aim of evaluating and developing a market-driven value chain for high quality fresh fish products in Antigua and Bermuda. The findings indicated that the major causes of challenges experienced boiled down to lack of marketing enablers and lack of market research that could transform the landed input to the final products that were more acceptable by the downstream consumers thereby eliciting positive feedback. Owing to lack of marketing skills, it was necessary for relevant training to be imparted or by establishing central marketing location or system to help maximize on the efficiencies and synergies that might accrue thereby. With the impact created through accrued efficiency, the end result would have a direct impact on the income of domestic fisher through earnings reflected by high revenue returns per unit sold. Such a structure would create an avenue for fishers to maximize returns will alleviate the constraints of locating markets and competing ineffectively with established systems, in place on fisher folk to locate and operate in competitive market and marketing environment. Towards this, the market environments will be levelled and hence work towards enhancing product distribution operations.

In Ogola and Wanjau (2013), studies on factors affecting value addition in the leather industry in Kenya, skills development featured as an enabler towards improved performance. A majority of the respondents were alive to this fact and thereby indicated skills development as a key aspect that enabled them to work better and faster. The same was buttressed by the findings by Muthee (2008) whose findings indicated that capacity building and skills development was necessary to enhance leather industry performance.

He went further to indicate that for leather industry to be prosperous there was need to ensure that the management and employees were both empowered through skills upgrade.

On human capital development, in their study, Zubovic et al., (2009) recognized human capital as an instrument for improving productivity. The findings concluded that education and training were long-life process. It called for the need to observe all the levels of the process from the policy makers to the households. It recognized the need for an understanding that education was dynamic and therefore there was need to understand this dynamic and move away from holding seminars whose output may not be sufficient to impart required skills and knowledge and especially in food industry. They stated that education as much as it is essential for a person to be well organized in food industry; it was not sufficient for the knowledge to be applied in an industry set-up efficiently. It continued to indicate that in-house training was vital for enhancing acceptability of education. It is then trailed by a wide span of other knowledge sources.

In a study conducted on impact of access to agro-processing technologies by (Odoyo, 2013) the study findings indicated that the frequency of visits to farmers by agricultural experts caused a statistically significant influence on the number of agro-processing establishments by smallholder farmers. These establishments also increased due to frequency of information exchange. It emerged also from the study that there was a substantial correlation between agro-manufacturing training conducted and the number of agro-processing IGAs set-up by smallholder farmers in the research area. Agro-

manufacturing skills training were also recognized as an enabler to establishments of more agro-processing concerns. The same was negative for the untrained respondents.

## 2.4 Conceptual Framework

Based on presentations by (Mugenda & Mugenda, 2006), a conceptual framework is detailed as an imaginary template showing the model under review as well as the associations among the dependent and independent variables. A conceptual framework captures the connection among the variables of the analysis and presents this association diagrammatically.

**Figure 2.1:** *Conceptual Framework*

| Infrastructure |
| --- |

| Human Capital |
| --- |

| Government Policy |
| --- |

| Training |
| --- |

| Value Addition |
| --- |

**Independent Variables**                    **Dependent Variable**
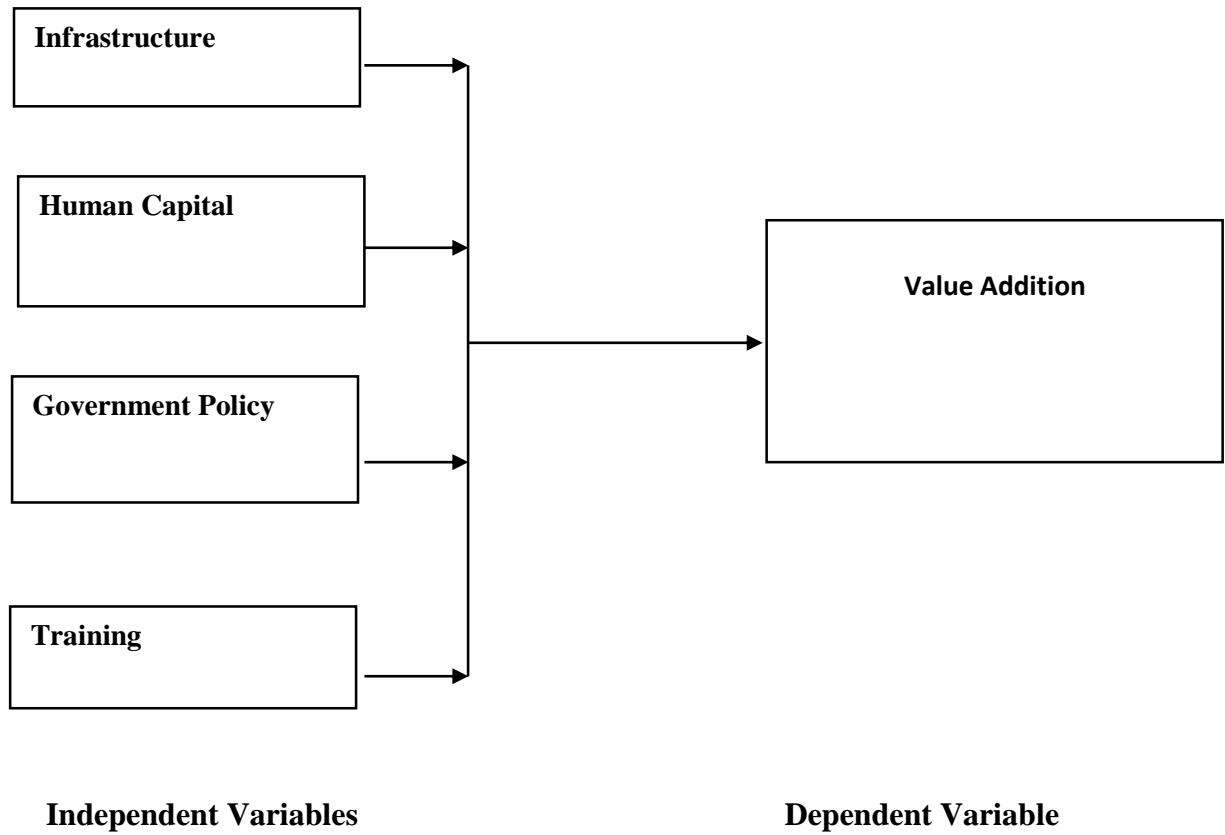
*Source: Author (2019)*

**2.5 Operational Framework**

**Figure 2.2:**
*Operational Framework*



| Dependent Variable | Independent Variable | Parameters |
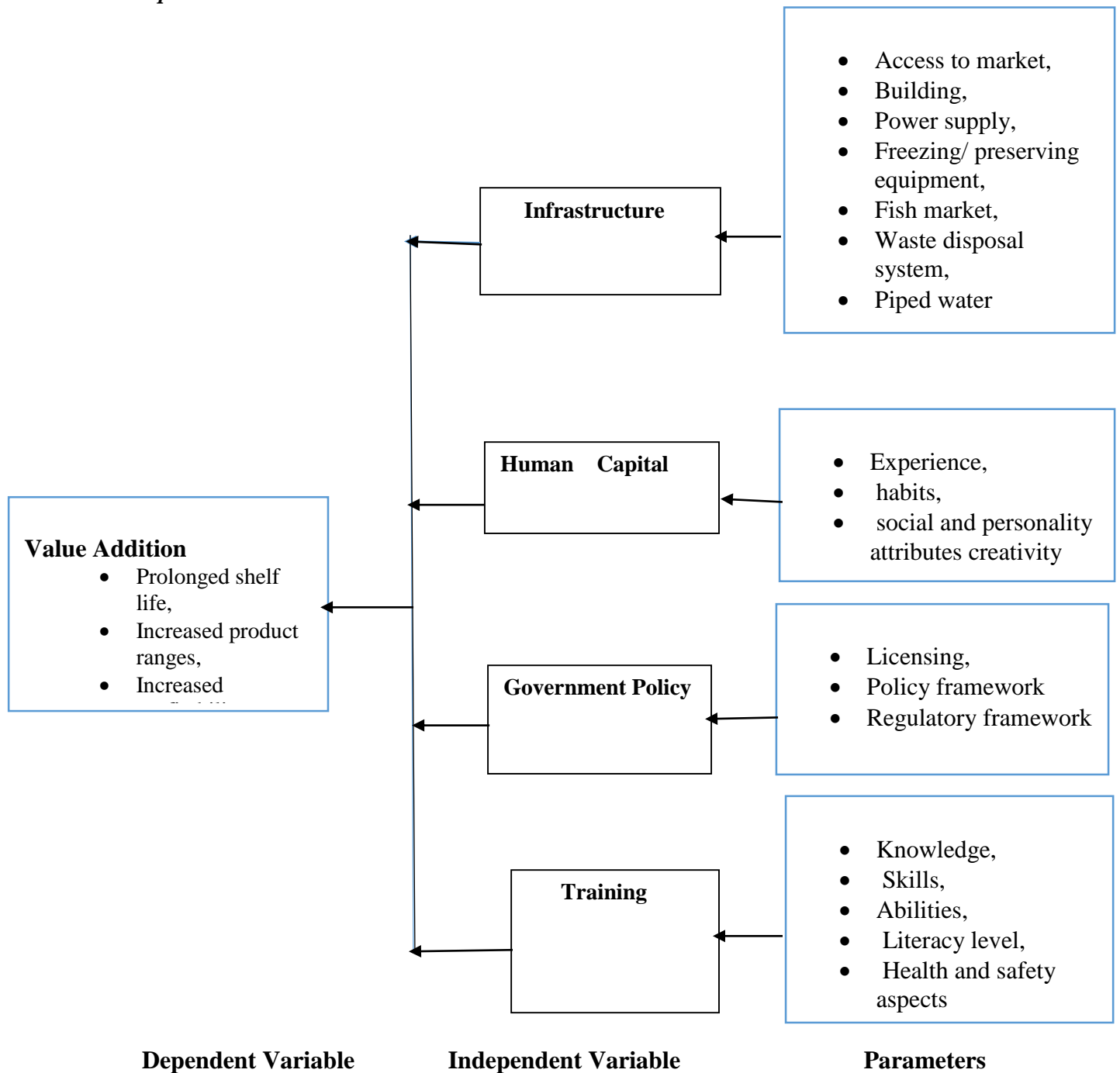
*Source: Author (2019)*

**Discussion of conceptual framework**

The operation framework of the study is shown in figure 2.2. it shows that fish business infrastructure, human Capital, Government policy and training of the traders are independent variables and fish value addition as the dependent variable. In this operation framework, it depicts that business Infrastructure is direct predictor of Fish value addition. The infrastructure is construct measured by ease of access to market, building and power supply. It is also assessed in terms of assess to freezing/ preserving equipment, fish market, waste disposal system, piped water. It is presumed that good fish business infrastructure results to high value addition activities. The Human Capital construct is presumed to have a direct positive effect on value addition such high human capital score is associated with high value addition. Human capital is measured by the level of experience in fish trade, creativity, social and personal attributes

It is also conceptualized that Government Policies are measured in terms of ease of licensing, policy framework and regulatory framework. It is presumed that these policies have a direct positive influence on value addition. Further, it is conceptualized that the level of training can be measured by Knowledge, skills, abilities, Literacy level, health and safety aspects of the traders, and the training level has a direct influence on value addition. Finally, the operation framework set that value Addition is measured in terms of prolonged shelf life, product ranges and profitability. This operation framework is to provide insight into fish value addition in Mombasa County and therefore develop a value addition model.

## 2.6. Research gap

From the study, the researcher identified that fish value chain is quite dynamic and it entails underlying issues which in one way or the other, may impede on the uptake of the value addition. Towards this end it may be necessary to determine the association of this dynamics with fish value addition activities.

There is therefore need for further research to determine other influencing factors in the fish value chain dynamics and its influence on the attitude of fish traders on value addition. This issue emerged in the process of the research but could not be investigated hence the need to be considered for future research.

## CHAPTER THREE

## RESEARCH METHODOLOGY

### 3.1 Introduction

In this chapter it outlines the overall methodology that was used to carry out this research study. It addresses the research design adopted, data collection method, measurement and analysis of data. Specifically, the following subsections are included; research design, population, sample, data collection and analysis of data.

### 3.2. Research design

According to Sekaran (2010), a descriptive study is undertaken to ascertain, and outline the characteristics of the variables of interest in a situation. The objective is to offer a profile or define relevant aspects of the phenomenon of interest. With descriptive studies the researcher was able to understand the characteristics of the elements, reasonably address the parameters of the elements being studied, and offer ideas for further research and in the process also assist in making simple decisions. The descriptive study design was considered appropriate given the qualitative nature of variables used. It made more sense compared to probit, logit or linear probability models which have limitations in determining qualitative responses, like accounting for unquantifiable characteristics of the subjects under study.

This study embraced a descriptive research design. The design offered necessary description of the subject under the study and identified problems addressed, profile of

subjects through collection of necessary study details and documented the same using statistical parameter like frequencies. This data was later used for interpretation through analysis. The researcher used quantifiable statistics of mode, frequencies, percentages and socio-economic characteristics of the respondents as well as the four independent variables and the dependent variable. The measurement was determined using the Likert scale of 1-5 with 1 being the highest degree of disagreement while 5 denoting the highest degree of agreement. Disagree is represented with 2 and agreement is measured with 4 in the scale. Level 3 stands for indifference/neutral. The Qualitative variables were measured using ordinal parameters.

## 3.3. Target population

A population refers to the entire group of people or things of interest that the researcher wishes to investigate, (Sekaran, 2010).In Mombasa County there were 76 licensed fish traders (FIQA, 2018). The target population of this study was made up of 76 fish traders with 8 of these being drawn from large fish traders, while the remaining 68 being drawn from small fish traders. Out of this the researcher intent was to collect information from persons directly involved in one way or the other in fish handling and processing with the purpose to add value.

The targeted population had observable characteristics like size of the business, technological endowment, the level of operation, category of customer targeted, level of value addition adopted, and number of years in business, qualification and technical know-how of workforce among other things. The researcher depended on these data for

analysis purpose. The value chain actors characterized the unit of analysis for the study as presented in table 3.1.

**Table 3. 1:**

*Target population*

| Strata | Target Population | Percentage |
|---|---|---|
| Small Fish Trader | 68 | 89 |
| Large Fish Trader | 8 | 11 |
| **Total** | **76** | **100** |

Source :*( FIQA 2018 Annual Report for Mombasa National Fisheries Office and Department of Trade, Tourism and Investment- Licensing Report 2018, Mombasa County)*

## 3.4. Sampling Procedure and Sample Size

Being that the focus of the study was a population that was less than 100 subjects, the researcher undertook a complete enumeration of the population. In this respect, 76 subjects were targeted for study.

### Sampling Design

The study adopted a complete enumeration of the population. In this respect each and every element in the population of target population from the strata were subject of the study.

## 3.5. Instrumentation

Questionnaires were distributed and used as the preferred data collection instrument. Open and closed ended questions were used for collection of data from the subjects.

The questionnaire was designed to cater for both large and small fish traders and necessary questions focusing on both categories of fish traders were asked. The questionnaire had four major parts to help facilitate collection of data pertinent to respondents' background information, work related data and study objectives.

**Pre-testing**

Pre-testing of the questionnaire which is the preferred data collection instruments, was undertaken in Mvita sub-county in preparation of the larger study. This exercise was undertaken to help identify any potential problem areas prior to the main study. The area for pre-testing was selected owing to nearness to the CBD of Mombasa; closeness of the subjects in this area of study and the characteristics of the subjects was more or less similar to the other five sub-counties under study. Selection techniques was based on suitability, but care was taken to ensure that the participants were selected to represent the various sizes that were important to the study in terms of age, gender, experience, and geographical location.

**Validity**

The respondents represented the domain or the universe population. All the respondents were considered for survey and were therefore chosen for the purpose. This criterion ensured that there was related validity. Both the design and method of research ensured that the outcome was valid and truly represented the phenomenon the researcher was measuring.

**Reliability**

Reliability in this study refers to how consistent the instrument is far as its measurement of the variables is concerned (Taylor et al., 2015). The reliability of the research

instruments was pre-tested to get rid of inconsistencies and inaccuracies and this was corrected before the main study. After one week the researcher re-administered the same questionnaires to the same group. This was done to ensure that the tool used gave consistent results. In this respect, the results had an inter-rater reliability.

**Ethical Consideration**

The researcher intended to ensure that research ethics was upheld and maintained throughout the study. The researcher sought informed consent from the subjects under study. Confidentiality of the respondents was also upheld. Details that would disclose the identity and persona of the respondents were avoided. Impartiality and freedom to respond as desired was encouraged.

**3.6. Methods of Data Collection**

**Primary Data**

The study used questionnaires which contained open and closed questions to collect primary data from the respondents. A study survey was adopted which focused on the entire number of respondents. The choice of questionnaires was warranted in this case and considered the most appropriate data collection instrument. The questionnaire was prepared in a logical sequence as per the areas being studied and the items were grouped together based on similarities of the study constructs and details sought. According to (Mugenda & Mugenda, 2006) the questionnaires give detailed answer to complex problems. The questionnaires are also considered a popular instrument for data collection. They are also cheap to prepare, to administer and in analysis. The questions used in the questionnaire were both open and close-ended.

The closed-ended questions were universally adopted since they were easier to analyze

and were in an immediate usable form, were easier to administer and economical to use

in terms of time and money (Mugenda & Mugenda,., 2003). The open ended questions

which gave the respondents the freedom to respond with flexibility and in their own

words in answering to the study constructs (infrastructure, manpower, government

policy and training), with the questions rated on a scale of 1-5. Permission for data

collection was sought as necessary in line with regulations and permission in form of

letters that were drafted requesting the respondents to provide data relevant to the study

in confidence. While doing this, necessary ethical values on data collection were

observed.

**Secondary Data**

The study used secondary data that was collected from relevant Journals, Publications

and the internet.

## 3.7. Operational definition of variables

**Table 3. 2:**

*Methodology for Measurement of Variables*

| Type of Variable | Variable | Indicator | Level of Measurement | Measurement Mechanism |
|---|---|---|---|---|
| Dependent | Value Addition | Prolonged shelf life | Ordinal | Responses |
| | | Increased product ranges | Ordinal | Responses |
| | | Increased profitability | Ordinal | Responses |
| Independent | Infrastructure | Access to market | Ordinal | Responses |
| | | Building | Ordinal | Responses |
| | | Power supply | Ordinal | Responses |
| | | Freezing/preserving equipment | Ordinal | Responses |
| | | Fish market | Ordinal | Responses |
| | | Sewage system | Ordinal | Responses |
| | | Piped water | Ordinal | Responses |
| Independent | Human Capital | Experience | Ordinal | Responses |
| | | Habits | Ordinal | Responses |
| | | Social and personality attributes | Ordinal | Responses |
| | | Creativity | Ordinal | Responses |
| Independent | Government Policy | Licensing | Ordinal | Responses |
| | | Policy framework | Ordinal | Responses |
| | | Regulatory framework | Ordinal | Responses |
| Independent | Training | Knowledge | Ordinal | Responses |
| | | Skills | Ordinal | Responses |
| | | Abilities | Ordinal | Responses |
| | | Literacy level | Ordinal | Responses |
| | | Health and Safety aspects | Ordinal | Responses |

*Source: Author (2019)*

## 3.8. Methods of data analysis

Both qualitative and quantitative data analysis methods were used for analysis of the research variable. A likert scale was used for data collection in order to minimizing subjectivity. This scale was in the measure of range of 1-5 and indicated the degree of agreement to the study constructs. The analysis was conducted in two main levels. Level one involved the univariate statistics using the frequencies, mean and standard deviation of relevant biographic and study variables. Figures and tables are used to supplement the results.

The second level involves the bivariate statistics to investigate relationship among the potential value chain determinants. In this phase, Correlation and regression analysis forms the chore of the analysis. The regression assumptions discussed in the previous section that may compromise the regression results, are during conducting the regression analysis.

Quantitative analysis was used to test the theories as depicted in the theoretical framework used in the study and either prove or disapprove it. Both descriptive and inferential statistics were used to determine the relationship between infrastructure, human capital, government policy and training as independent variables and value addition as dependent variable.

The researcher had interest in analysing information in the qualitative studies. Information was collected and arranged in a systematic manner in order to come up with useful information for purposes of arriving at the conclusions and thereby making recommendations. Detailed information about the study construct was identified

through qualitative analysis. The information gathered was used by the researcher to identify the patterns and existing relationships. The validated questionnaires with the study responses were edited, coded and entered in an excel spread sheet and thereafter analysed using descriptive statistics. The tools used were for purposes of describing the data and for determining the degree of agreement with the various statement used in the data collection instrument.

# CHAPTER FOUR

## RESULTS AND DISCUSSIONS

### 4.1. Introduction

The researcher conducted a descriptive or statistical research to investigate factors that influence value addition among fish traders in Mombasa County. Data was collected from selected traders dealing with fish business in order to determine the influence of infrastructure, human capital, government policy and training on value addition among fish traders in Mombasa County. The methods of data collection and how to conduct data analysis have been discussed in previous chapter. In this chapter, the research findings are presented and discussed in light of the research objectives. The findings were utilized to formulate recommendations to advance value chain in fish trading in Mombasa County and associated Counties.

The analysis was conducted in two main levels. Level one involved the univariate statistics specifically the frequencies, mean and standard deviation of variables. Figures and tables are used to present the results. The second level involves the bivariate statistics to investigate relationship among the potential value chain determinants. Correlation and regression analysis forms the chore of the second level. The regression assumptions discussed in the previous section that may compromise the regression results, are tested in this chapter prior to conducting the regression analysis.

## 4.2. Response Rate

Pre-testing of the questionnaires was done in Mvita Sub County to determine suitability of the study instrument. The pre-testing was also meant to seek clarification and amend areas that were unclear for the success of the exercise. The researcher studied 76 subjects from the various fish value chain actors comprising of both large and small fish traders within Mombasa County. Out of the 76 subjects, a total of 67 responded positively to the research study, giving an 88.16 % response rate. Mugenda & Mugenda, 2003 assert that a response rate of 50% is ideal to make generalizations for a study.

## 4.3 Demographic of respondent

### Gender of the respondents

The study collected data from both genders from the population size of 67 respondents; this was found necessary and the main driver was to enable the researcher collect data from both male and female respondents and ensure that any gender bias was eliminated. In this study, the gender was determined by the data gathered from the responded, owner of the business or contact person of the fish traders who was available to respond to the questionnaire and or participated in the interview. The results gotten were then presented as indicated in figure 4.1

**Table 4. 1**

*Gender of the respondents*

| Gender | Frequency | Percentage |
|--------|-----------|------------|
| Male | 53 | 79 |
| Female | 14 | 21 |
| **Total** | **67** | **100** |

**Figure 4. 1:**

*Gender of respondents*
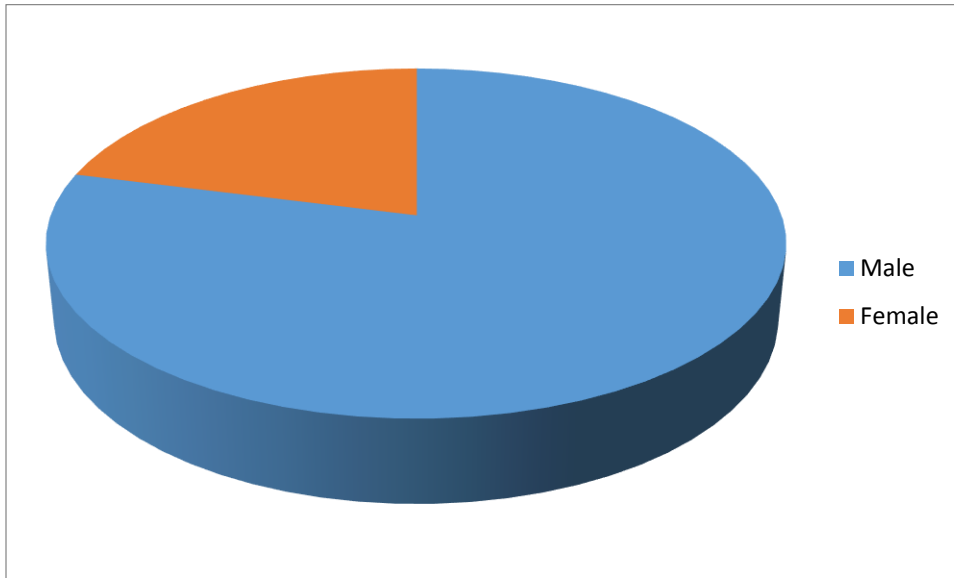


From Table 4.1, the data obtained in relation to the gender of the respondents, 53 (79%) of the respondents were male while 14 (21%) were female.

The results in figure 4.1 shows that majorities (79%) of the respondents are male and the rest are female (21%), indicating that fish business is male dominated.

### Age of the Respondents

The study collected data from diverse age groups of the respondents in order to avoid bias in relation to age. Given the nature of study, it was important to collect data across the different age groups to be able to determine the active age group in fish value add activities. The findings were then represented in Figure 4.2.

**Figure 4. 2:**

*Age of Respondents (n=67)*
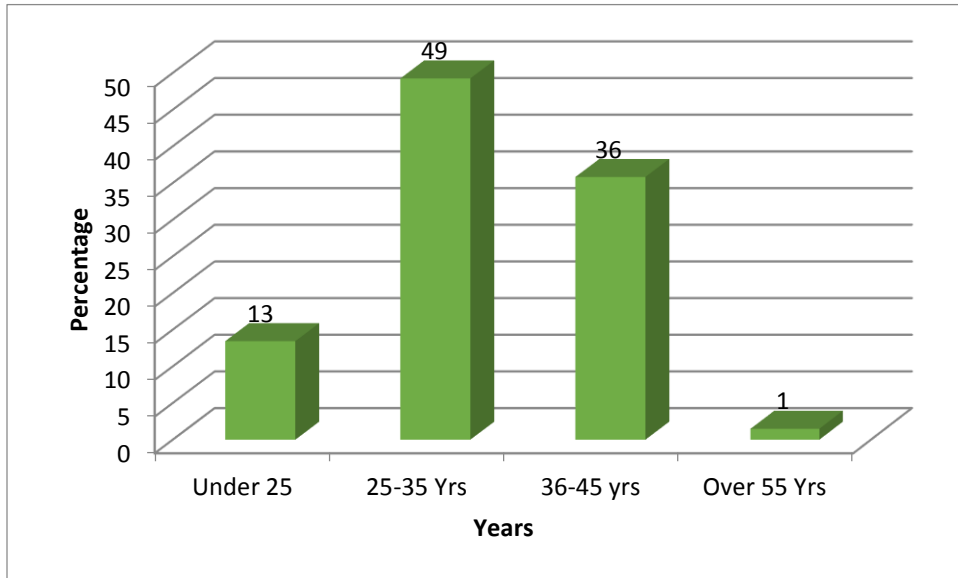


The results in Figure 4.2 indicates that majority of the fish operators are 25 to 35 years of age at (49%), followed by those aged 36 to 45 years of age at (36%). Therefore, traders aged between 25 years and 45 years comprised 84% in total of the fish traders in Mombasa. This indicates that the fish business in Mombasa are dominated by youths, who according to Kenyan constitution are persons between the age of 18 and 35 years. The business serve as a source of employment and value addition is one of the ways of improved employment opportunities. A World Bank report shows that Kenya leads the region in youth unemployment at 17.3 per cent compared to only six per cent for neighbouring Uganda and Tanzania each.

The youth are a dividend to the business themselves because they are innovative and energetic, given the support in the self-employing jobs, like fish trade, can be a true transformation partners to ensure the region is an economic hub.

### Level of education of the respondents

The researcher collected data from respondents of different intellectual capacity based on their level of education; this was meant to get responses from the levels of education represented in the fisheries value chain. The findings in Figure 4.3 indicate that more than half of the fish traders have secondary and above education; 42 Percent secondary, 7% college and 9 % university.

**Figure 4. 3:**

*Education Level of respondents*
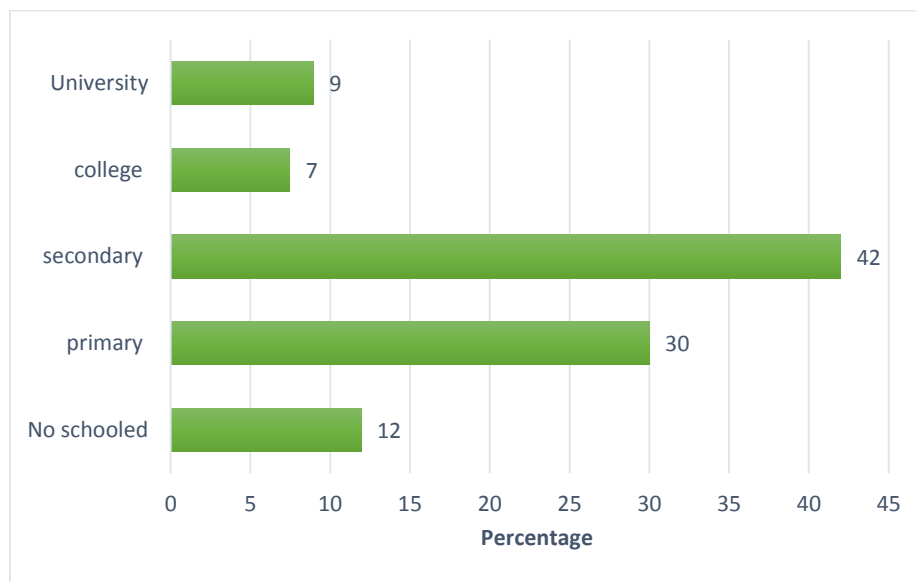


Results in Figure 4.3 shows that most fish traders (42%) attained secondary school education level and (30%) attained primary education. The results also show that (12%) did not attend formal education, (9%) had university education while (7%) had college

education. The implication of these findings is that the majority of fish traders (58%) had secondary and post-secondary education and were thereby is educated enough and in a position to contribute, participate and make decisions on fish value addition.

The result further suggests that the business traders in the region have attained university and college education necessary to strengthen their business skills as business men and women and as employers. University and College educated traders attain modern skills to integrate into business management practices, especially in educating and training the workforce, improving business performance in terms of reducing cost of human resource development activities, saving labor hours, improving customer satisfaction, and guaranteeing faster time-to-market for products and services. They are likely to use modern e-business to seek for market for their products. Overall, the formal education level of the traders is a resource to utilize the scarce resources to maximize gains from the fish trade, despite the challenges of infrastructure. Because education is necessary for innovation.

## 4.4 Socioeconomic Factors in Fish trade in Mombasa

**Work Experience**

The researcher targeted at collecting data from respondents in dissimilar categories based on the number of years served in the fish dealership business which amounts to cumulative work experience of each responded. This focused on obtaining responses from the fish traders on the number of years expended in the respective fish business activities. The findings were then presented in Figure 4.4.

**Figure 4. 4:**

*Work Experience of fish traders*
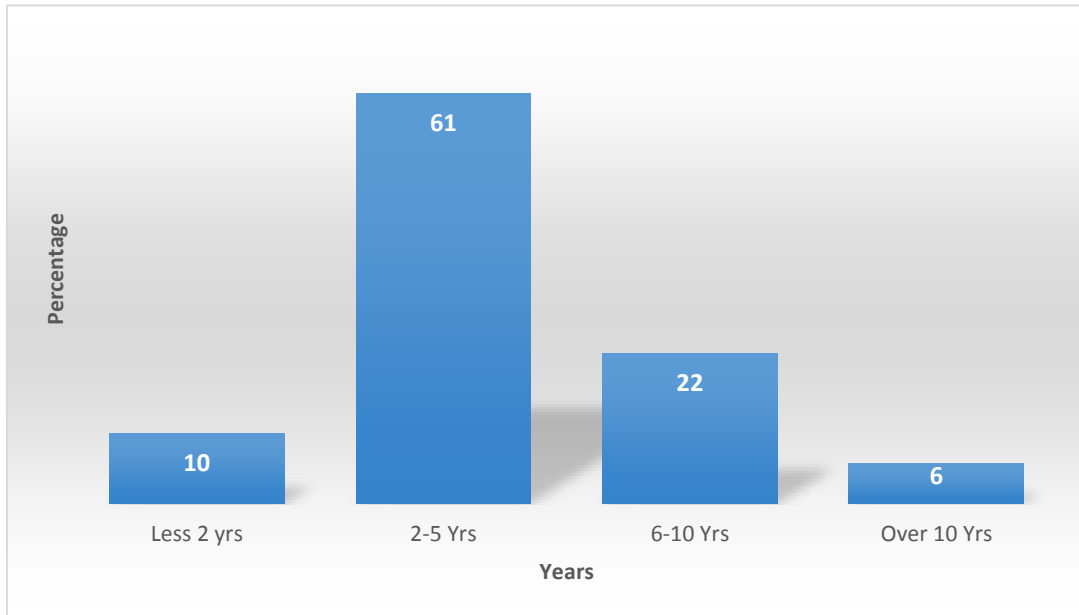


The results in Figure 4.4 show that most (61%) fish traders in Mombasa County have 2 to 5 years' experience followed by 6 to 10 years' experience at (22%), a further (10%) have less than 2 years' experience while (6%) had over 10 years' experience. illustrating that the fish traders in the county have experience necessary in value addition.

This implies that the researcher managed to obtain information from a wider representation of all levels of work experience. From the ensuing findings and given the diversity and accumulated years of experience gathered in fishing business, it indicates that the respondents were in a position to provide vital information in relation to the factors affecting fish value addition.

**Business type and form of fish bought**

Business type data and the form in which traders buy fish data was cross tabulated to assess the relation between a two categorical variables to reveal what is not possible if the two variables are univariate assessed. It jointly displays the distribution of two or more variables by tabulating their results one against the other in a 2-dimensional grid to show their interdependency as indicated in Table 4.2.

**Table 4. 2:**

*Business type and form fish is bought Cross tabulation*

| | | Business Type | | | | |
|---|---|---|---|---|---|---|
| | | **Trading** | **Processing** | **Sales** | **Processing & Sales** | **Trading & Sales** |
| Form fish bought | Fresh | 6 | 2 | 29 | 3 | 5 |
| | Semi-Processed | | | 3 | | 1 |
| | Processed | | | 0 | | |
| | fresh & Processed | 2 | 1 | 7 | | 8 |

The tabulation statistics shown in Table 4.2 reveal interesting findings; 29 out of 67 fish traders that is (43%) buy fresh fish for direct selling. This means that there is no important value addition. A further check on the cross tabulated results shows that only 2 out 67, that is (3%) of the traders buy fresh fish and process. So the results further indicate that fish value addition is quite low in the County of Mombasa.

**Status of Land Ownership**

The researcher sought to find out from respondents on status of land ownership under fish business and value addition. The necessity of this information was to obtain responses to determine the level of financial commitment and infrastructural developments consideration for promotion of fisheries business by the value chain actors. The results were then presented in Figure 4.5

**Figure 4. 5:**

*Land ownership*
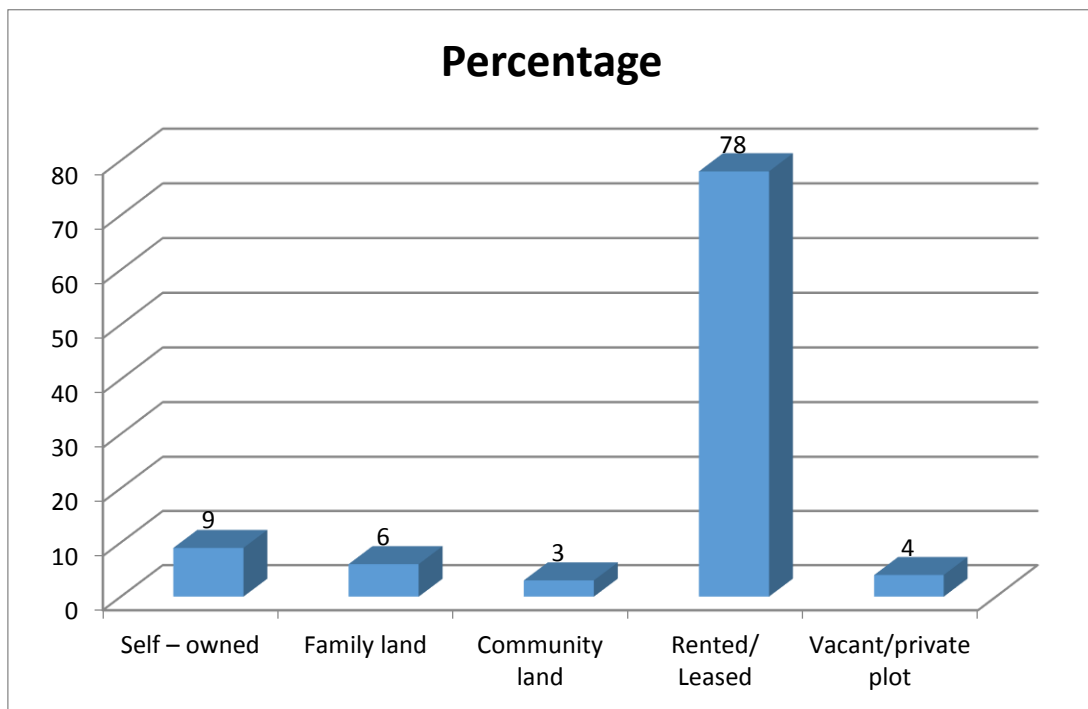


The study findings were that a majority of fish traders 52 (78%) operated their businesses on rented/leased land, 6 (9%) of respondents operated their businesses on self-owned land, 4 (6%) operated their businesses on family land, 3 (4%) operated on vacant/private plot, while 2 (3%) of respondents operated on community land. From the

finding, a majority of the fish traders do not own land where they undertake their fish value addition businesses. This therefore implies that fish value addition activities are limited given the limited nature of land ownership by the fish traders.

**Size of land under fisheries business and fish value addition**

The study aimed to determine the size of land under fisheries business. This information was considered necessary to identify the land occupancy under fisheries business. The results are presented in Table 4.3.

**Table 4. 3:**

*Size of land under fisheries business and fish value addition cross tabulation*

| Size of land (Acres) | Land under fisheries business | | Land under fish value addition | |
|---|---|---|---|---|
| | Frequency | Percentage | Frequency | Percentage |
| 1-2 | 7 | 10 | 1 | 1 |
| 0.76 - 1 | 7 | 10 | 6 | 9 |
| 0.51- 0.75 | 13 | 19 | 13 | 19 |
| 0.26 - 0.5 | 8 | 12 | 4 | 6 |
| 0 - 0.25 | 32 | 48 | 43 | 64 |
| **Total** | **67** | **100** | **67** | **100** |

The researcher sought to find out the size in acreage of the land used for fish business. The information was necessary to help determine the commitment and dedication in terms of infrastructural developments for fish business and to identify the level and intensity of fish value addition activities. From the study, the findings were that 32 (48 %) of the fish traders were operating their business activities on 1/4-acre piece

of land. 13 (19%) of the fish traders occupied about 3/4 acres for their fisheries activities, 8 (12%) operated their fish businesses/ value addition activities on a parcel of 1/2 acre of land, 7 (10%) occupied between 1- 2 acres of land while another 7 (10%) occupied 1 acre of land. The findings indicate that a majority of respondents 53 (79%) operated their fisheries businesses in parcels of land measuring less than 1 acre.

In relation to the size in acreage of the land used fish value addition activities the findings were also tabulated in Table 4.4. From the study, the findings were that 43 (64%) of the fish traders were undertaking their fish value addition on 1/4-acre piece of land. 13 (19%) of the fish traders had dedicated 3/4 acres of land for their fish value addition, 6 (9%) had dedicated 1 acre, 4 (6%) had dedicated 1/2-acre piece of land while 1 (1%) had dedicated 1–2 acres' part of the land for fish value addition activities.

The findings indicate that a majority of respondents 56 (84%) had dedicated less than an acre part of the fisheries business land for value addition activities. This indicates that the majority of the traders can be categorised as small and medium scale given the size of land dedicated for fish value add activities. The implication of the findings is that there is less commitment by the fish traders on fish value addition activities within their business premises.

**Type of Fish Traded**

The study sought to identify the types of fish traded and/or processed by the fish value chain actors. The findings are presented in Figure 4.6.

**Figure 4. 6:**

*Types of fish Traded*
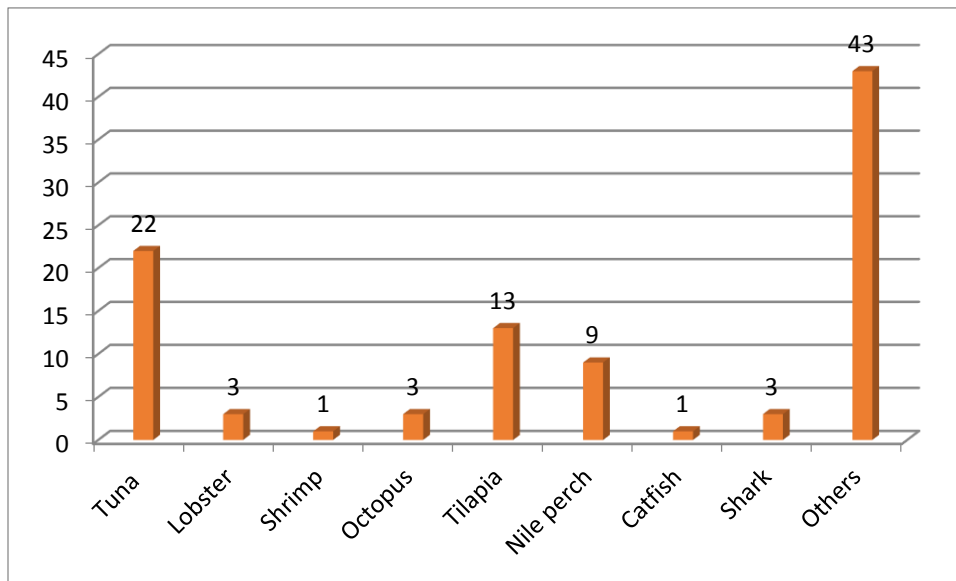


The findings of the study indicated that a majority of the fish traders, 29 (43%) traded in other types of fish, 15 (22%) traded in tuna, 9 (13%) traded in tilapia, 6 (9%) traded in Nile perch, 2 (3%) traded in lobster, another 2 (3%) traded in octopus, a further 2 (3%) traded in shark, 1 (1%) traded in shrimp while another 1 (1%) traded in cat fish. The implications of these findings are that 51 (76%) of the respondent's trade on marine fish and fishery products while 16 (24%) of the respondents traded on fresh water fish and fishery products.

**Main Source of Fish Traded**

The researcher targeted at collecting data from respondents on source of fish traded. This information was considered necessary to determine whether the fish and fishery products were sourced from within the county or from sources outside the county. This was to help determine sustainability of relying on local sources as the mainstay of the fish value addition. This information was also necessary in identifying at what point the value add process was undertaken if any. The findings were then presented in Table 4.4.

**Figure 4.7:**

*Major source of fish traded in Mombasa*
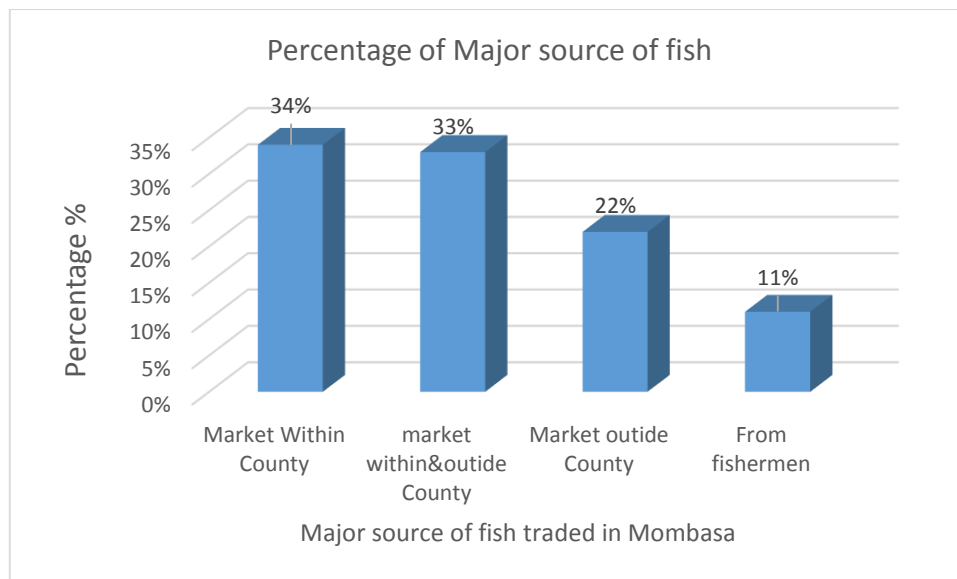


The study findings were that a majority of the fish traded, 23 (34%) were sourced from fish markets within the county, another 22 (33%) of the fish traded were from both fish markets within and outside the county, 15 (22%) were sourced from fish markets outside the county, the rest of the fish is sourced majorly from fishermen within the county or outside (11%)

The implication of this finding is that there is adequate supply of fish from within the county and the same is supplemented with fish from outside the county. This is a sign that supply of fish is not an impediment in any way to fish value addition. The fish traders therefore have an opportunity to make use with the available resource and utilize effectively through value addition.

**Average Quantity of Fish Traded**

The researcher aimed at collecting data from respondents on the average quantity of fish traded on a weekly basis. This information was to determine level of activity in terms of tonnage. This information was also considered necessary because it would reflect on the capacity of the trader's output. The findings were then presented in Figure 4.8.

**Figure 4. 8:** *Average Quantity of fish Handled per week*
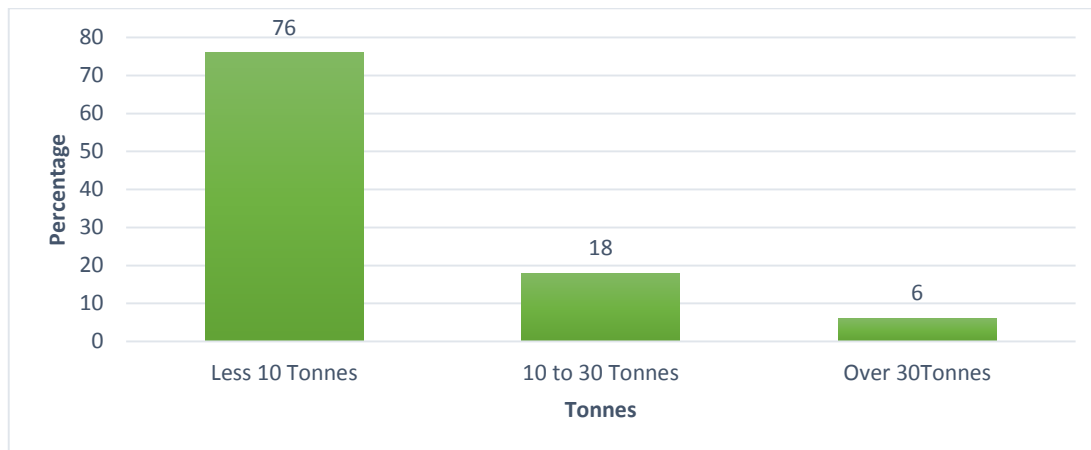


Quantity of fish handled was also assessed. The result in figure 4.8 shows that majority of traders (76%) handle less than 10 tons per week. Only 6% handle more than 30 tons per week meaning that a majority are small scale traders. Limited resources, skills and economies of scale are some of the bottle necks that small scale traders face in their

value addition endeavors and will therefore be a limitation in Mombasa County as well. When the respondents were asked to select one major forms of value addition they used in their businesses, 94% said freezing and only 2% engage in further processing. Implying that freezing is the main value addition undertaken by fish traders.

**Major Type of Customer**

The researcher sourced data from respondents to determine the major type of customer served. This information was to identify the niche market of the respondents. This information was necessary to identify the fish trader with the corresponding customers served. The results were then presented in Figure 4.9.

**Figure 4. 9:** *Major customer types*
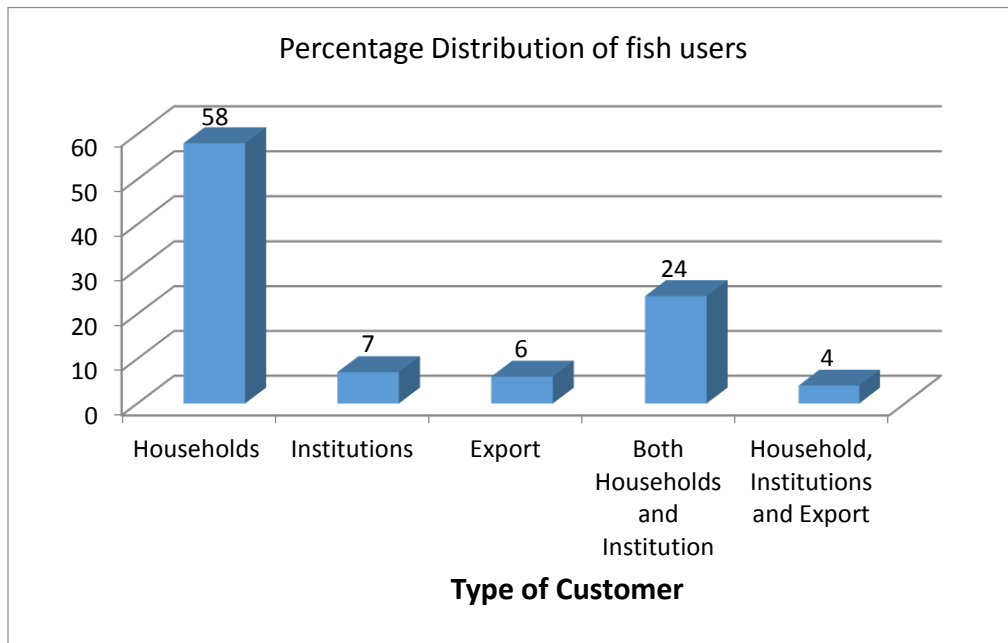


The study findings were that a majority of the respondents, 39 (58%) serviced households. 16 (24%) serviced both households and institutions, 5 (7%) serviced institutions, 4 (6%) serviced export market while 3 (4%) serviced households,

institutions and export. From the findings, there is clear indication that majority of the fish and fish products (> 89%) are consumed locally by households and institutions buyers with less than 11% consumed in external markets in form of imports.

**Form of Fish and Fishery Products Handled**

The researcher sourced data from respondents to determine the form in which the fish and fishery products are acquired. This information was to identify the level and participation of fish value added strategies that the respondent participated in. The findings were then presented in Figure 4.10.

**Figure 4. 10:**

*Form of fish and fishery products handled*



Form of fish and fishery products handled

Fresh + semi-processed 27%

Semi-processed 6%

Fresh 67%
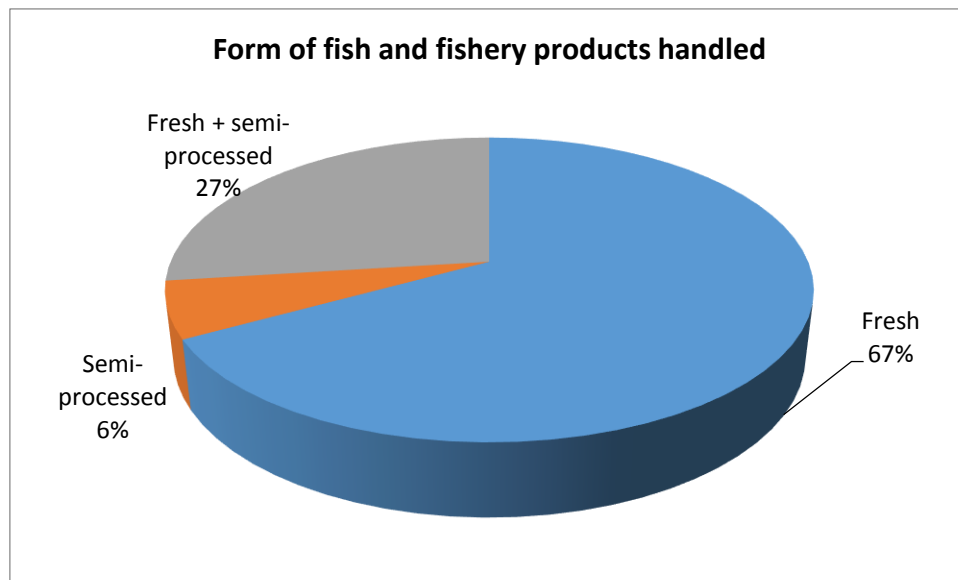
The study findings were that a majority of the fish traders, 45 (67%) acquired their fish and fishery products in fresh form. 18 (27%) acquired their fish and fish products in both fresh and semi-processed form while 4 (6%) of the fish traders acquired their products in semi-processed form. The implication of this findings is that more fish

traders (> 67%) acquire their products in raw form thereby availing an opportunity for the fish traders to engage in further processing in form of value addition.

**Method of Value Addition Practiced**

The researcher sourced data from respondents to determine the type of value addition that the respondent engaged in. this information was considered crucial as a way of determining value addition strategies employed by the fish traders. This information was also considered necessary for purposes of determining the intensity and capacity of engagement in value addition. The findings were then presented in Table 4.3 and Figure 4.11

**Figure 4. 71:** *Methods of Value addition*
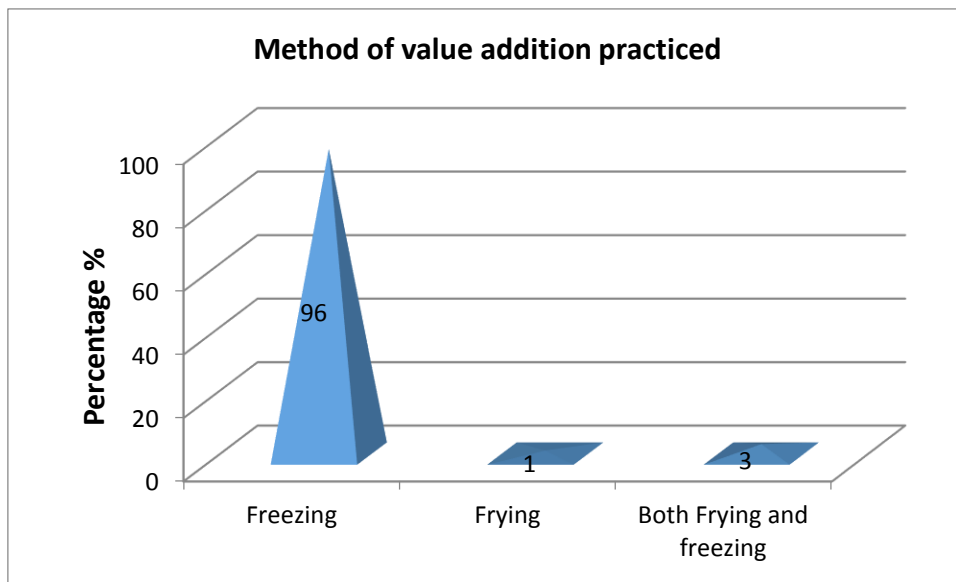


The study findings were that a majority of the fish traders, 64 (96%) engaged in freezing as their preferred value add strategy, 2 (3%) engaged in both freezing and frying as their preferred value add strategy while 1 (1%) engaged in frying as their value add strategy.

The implication of the findings is that freezing is the dominant value addition practice embraced by the fish traders. There is little indication that further processing is undertaken to add more value to the fish. Further processing would transform the fish from its original state into a more valuable fish product.

**Motivation of Engaging in Value Addition**

The researcher sought to determine from respondents on what motivates the traders to engage in fish value addition activities. In order to find out the reason, the respondents were required to identify one most important reason motivating factor to add value. And the results are as shown are as in figure 4.12

**Figure 4. 12:** *Motivation to engage in value addition*
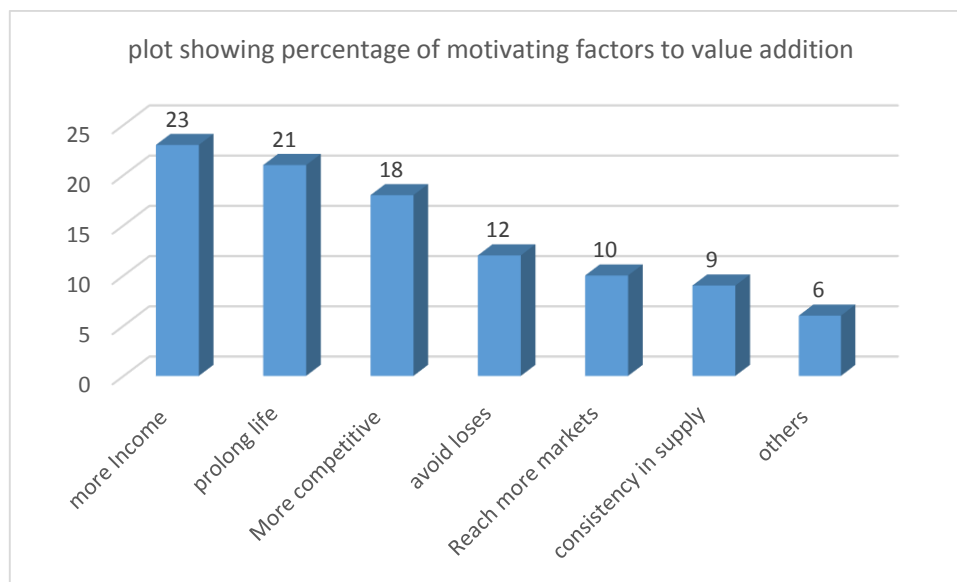


From the results the single most reason traders engage in value addition is to generate more income (23%) and prolong life of the fish (21%). Also it is seen that to achieve competitiveness (18%), avoid loses (12%) reach more markets (10%) and ensure

consistence supply (9%) are motivating factors to value addition by traders in Mombasa county. The results show that economic motivating factors are key drivers to increase the value of the raw fish and fish products at the points of sale. These findings are consistence with the view that fish when processed into a wide array of products increases economic value and therefore allow the fishing traders to reap the full benefits of their fisheries resources

**Training on Fish Handling and Safety**

The researcher aimed to determine from the respondents if they have undergone any training on fish handling and safety. This information was considered vital given the very nature of fish and fishery products which are considered to be highly perishable and can be easily contaminated if not well handled. The findings were then presented in Figure 4.13.

**Figure 4. 83:** *Training of Fish handling*
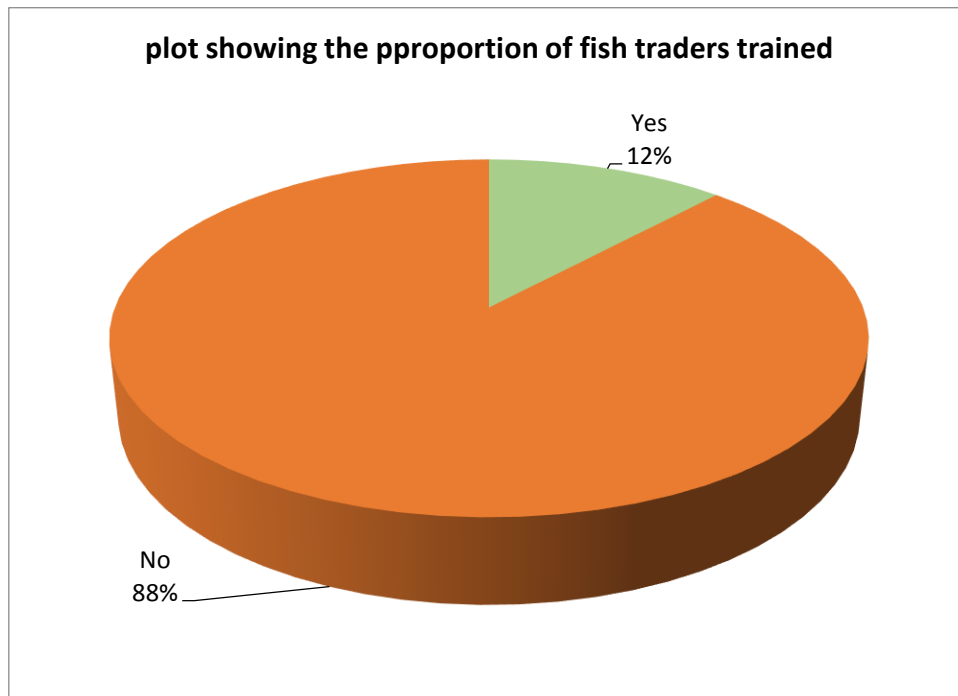
The result in Table 4.3 indicates that 88% of the fish traders surveyed have not received training regarding fish handling and safety thus suggesting that the businesses traders do not have the knowhow, knowledge and technologies of modern methods necessary to in value addition. The implication of this finding to this study is that lack of training on fish handling and safety is a major impediment that affects adoption of fish value addition. Owing to this, the fish traders are ill equipped to engage in extensive fish value addition which requires elaborate training.

**Challenges/Barriers in Fish Value Addition**

The researcher sought to identify the challenges the respondents faced in fish value addition. The findings were then presented in Figure 4.14.

**Figure 4. 94:**

*Challenges/Barriers in Fish Value Addition*
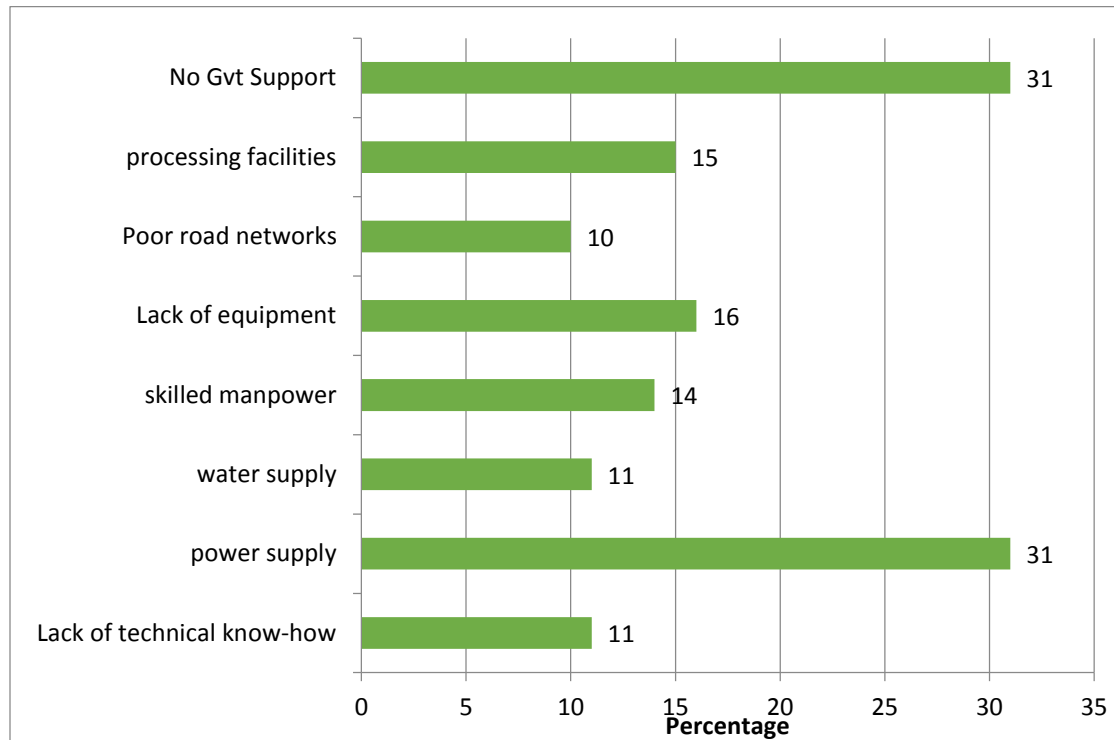


Power supply (31%) and lack of government support (31%) are the major challenges traders face. The other challenges are lack of equipment (16%), lack of processing facilities (15%) and lack of skilled manpower (14%). Other challenges cited are road infrastructure (10%) and water supply (11%). In the presence of challenges, especially strategic resources, organizations find it difficult to create sustainable competitive advantages. Examining these challenges cited in this study, it is clear that they are either resources or capabilities based, and according to the Resource Based Theory, limitation in resources spells doom for any organization to create a competitive advantage.

Therefore, these results suggest that fish dealers in Mombasa County finds it difficult to build a competitive advantage as they lack necessary resources and capabilities to add unique value to their fish and fish product different from competitors.

**Main Source of Water Supply for Value Addition**

The researcher sought to determine the source of water supply used in fish value addition activities. This was meant to identify the suitability, ease of access and the quality of water used in fish value addition activities. The results were then presented in Figure 4.15.

**Figure 4. 15**

*Main source of water*

plot showing % of main soource of water

| Source | |
|---|---|
| Both piped & rain water | |
| Rain Water | |
| Both Piped water & Borehole/shallow well | |
| Piped Water | |
| Borehole/shallow well | |

0   10   20   30   40   50
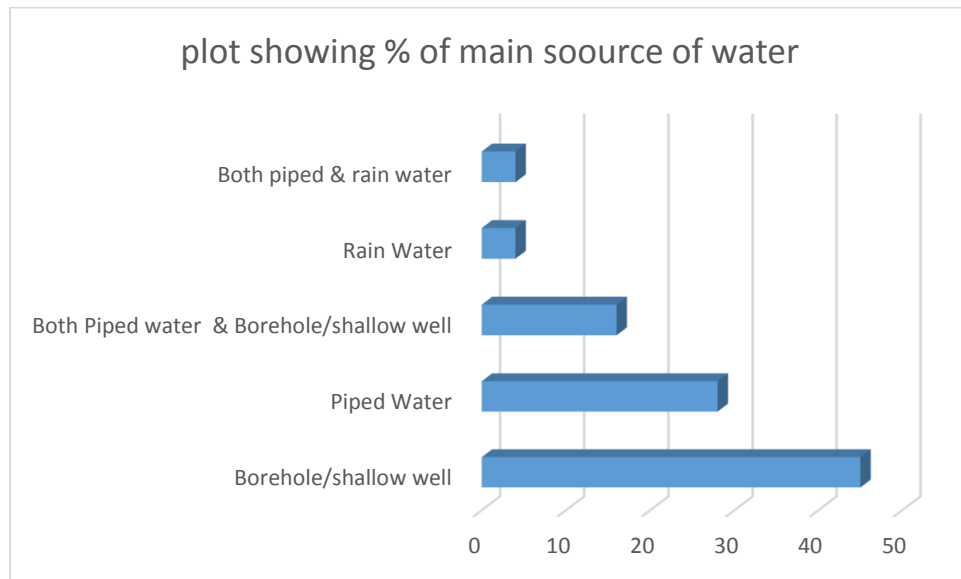
The study findings were that a majority of the respondents, 30 (45%) used water from borehole/shallow well for fish value addition activities. 19 (28%) of the respondents used piped water, 11 (16%) used both piped water and borehole/shallow well water,

3 (4%) used rain water, another 3 (4%) used both piped and rain water while 1 (1%) used both rain water and borehole/shallow well for fish value addition activities.

From the findings, there are diverse water sources for fish value addition. Among the sources identified, borehole/shallow well seemed to be popular or readily available water source. Piped water and a combination of both borehole/shallow well and piped water from the main water source are equally preferred options for fish value addition activities.

**Technologies Used for Water Harvesting**

The researcher sought information on technologies used for water harvesting for use in fish value addition activities. This was meant to identify the level of application of water harvesting technologies for fish value addition. The findings are presented in Figure 4.16.

**Figure 4. 106:**

*Technologies used in water handling*
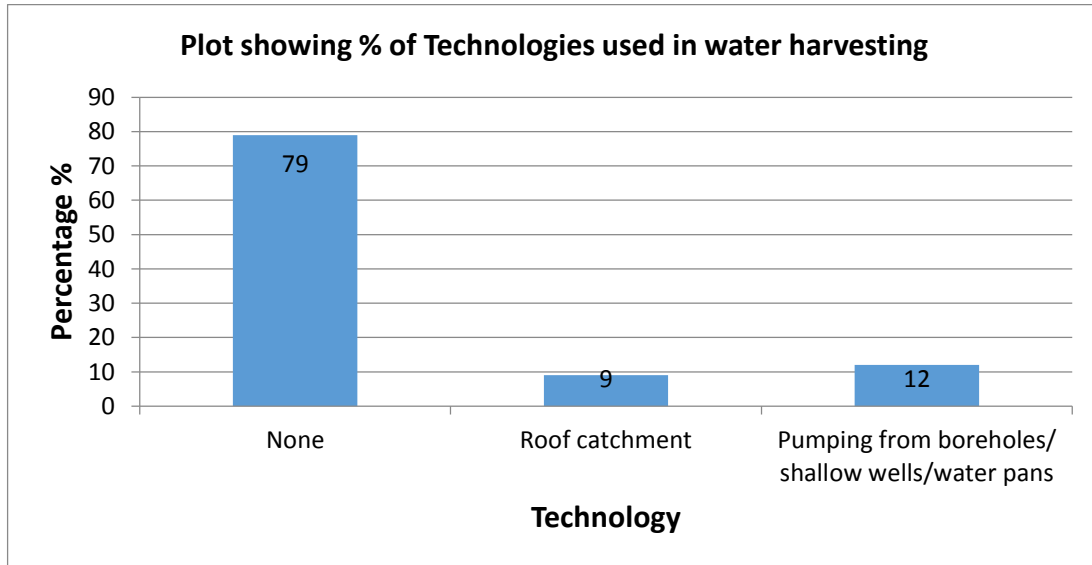


The study findings were that a majority of the respondents, 53 (79%) used no technologies for water harvesting, 8 (12%) pumped water from boreholes/shallow wells/ water pans while 6 (9%) used roof catchment to harvest rain water for use in fish value addition activities. From the findings there is little adoption of technology for water harvesting for fish value addition activities. This therefore means that opportunity to make use of technology for harvesting water is still a challenge thereby becoming inhibitive to enhance fish value addition activities.

**Fish Value Addition Equipment Used**

The researcher sought to determine the functional equipment used in fish value addition activities. This information was meant to help identify the levels of investment on capital equipment for fish value addition. The findings were then presented in Table 4.4.

**Table 4. 4:**

*Equipment used in fish value addition*

| Equipment | n | % |
|---|---|---|
| Freezer/Fridge/Chiller | 61 | 91 |
| Cooking equipment | 1 | 1.5 |
| Freezer/Fridge/Chiller & cooking equipment | 1 | 1.5 |
| Freezer/fridge/chiller & filleting tools | 1 | 1.5 |
| Freezer/fridge/chiller, filleting tools & packaging equipment | 3 | 4.5 |
| Total | 67 | 100 |

The study findings were that a majority of the respondents, 61 (91%) used freezer/ fridge/chiller in their value add activities, 3 (4%) used freezer/fridge/chiller, filleting tools & packaging equipment in their value add activities, 1 (1.5%) used cooking equipment for fish value activities, another 1 (1.5%) used freezer/fridge/chiller & cooking equipment in their value adding activities, while another 1 (1.5%) of the respondents used freezer/fridge/chiller & filleting tools in their fish value activities.

With the freezer/fridge/chiller being the dominant equipment owned by the fish traders, opportunities of engaging into full scale fish value addition is limited. This is because fish value addition requires investment in equipment and tools for cutting, frying, filleting, packaging etc. it is therefore imperative that the fish traders need to invest in more equipment for purposes of up scaling value addition activities.

**4.5 Descriptive result**

**Infrastructure for fish trading**

The researcher sought to investigate the influence of infrastructure on fish value addition. To respond to this question, the respondents were required to indicate to what extent they agreed with the statement. The summary of the findings is as presented in Table 4.5.

**Table 4. 5:**

*Infrastructure on fish value addition*

| Availability of …. | | SA | A | N | D | SD | Conclusion |
|---|---|---|---|---|---|---|---|
| market | n | 23 | 23 | 15 | 5 | 1 | Agree |
| | % | 34.33 | 34.33 | 22.39 | 7.46 | 1.49 | |
| established structures | n | 9 | 25 | 23 | 8 | 2 | Agree |
| | % | 13.43 | 37.31 | 34.33 | 11.94 | 2.99 | |
| power supply | n | 30 | 16 | 9 | 11 | 1 | Agree |
| | % | 44.78 | 23.88 | 13.43 | 16.42 | 1.49 | |
| preservation equipment | n | 29 | 23 | 7 | 6 | 2 | Agree |
| | % | 43.28 | 34.33 | 10.45 | 8.96 | 2.99 | |
| market | n | 32 | 18 | 9 | 5 | 3 | Agree |
| | % | 47.76 | 26.87 | 13.43 | 7.46 | 4.48 | |
| waste disposal system | n | 6 | 34 | 15 | 8 | 4 | Agree |
| | % | 8.96 | 50.75 | 22.39 | 11.94 | 5.97 | |
| piped water | n | 24 | 15 | 7 | 12 | 9 | Agree |
| | % | 35.82 | 22.39 | 10.45 | 17.91 | 13.43 | |

From the findings shown in Table 4.5, most of the respondents 23 (34.33%) indicated that they strongly agreed that access to market influences fish value addition. Another 23 (34.33%) indicated they agreed, 15 (22.39%) indicated indifferent/neutral response, 5 (7.46%) indicated they disagreed while 1 (1.49%) indicated they strongly disagreed. Also a significant majority 25 (37.31%) of the respondents agreed that availability of

established structures influenced fish value addition activities. 23 (34.33%) gave and indifferent/neutral response. 9 (13.43%) strongly agreed with this statement, another 8 (11.94%) disagreed with the statement while 2 (2.99%) indicated that they strongly disagreed with the statement.

Further table 4.5 shows that majority of the respondents 30 (44.78%) indicated that they strongly agreed that availability of power has an influence on fish value addition with 16 (23.88%) indicating they agreed with this statement. Further 11 (16.42%) of the respondents indicated they disagreed with the statement. 9 (13.43%) of the respondents indicated an indifferent/neutral response to the statement. 1 (1.499%) strongly disagreed. On the opinion that availability of preservation equipment influences fish value addition a majority 29 (43.28%) strongly agreed with the statement, 23 (34.33%) agreed with this statement, 7 (10.45%) of the respondents registered indifferent/neutral response to the statement, 6 (8.96%) of respondents disagreed while 2 (2.99%) of the respondents strongly disagreed with the statement.

On the statement that availability of market influences fish value addition, a majority 32 (47.76%) strongly agreed with the statement, 18 (26.87%) agreed with the statement, another 9 (13.43%) gave an indifferent/neutral response, 5 (7.46%) disagreed with the statement while 3 (4.48%) strongly disagreed. Further table 4.14 shows that majority of the respondents 34 (50.75%) indicated that they agreed that availability of waste disposal system had an influence on fish value addition. 15 (22.39%) gave an indifference/ neutral response, 8 (11.94%) disagreed with this statement, 6 (8.96%)

strongly agreed while 4 (5.97%) strongly disagreed. On the opinion that availability of piped water influences fish value addition, a majority 24 (35.82%) strongly agreed with the statement, 15 (22.39%) agreed with this statement, 12 (17.91%) of the respondents registered indifferent/neutral response, 9 (13.42%) strongly disagreed while 7 (10.45%) gave an indifferent/neutral response.

From the responses given, this implies that infrastructure has an influence on fish value addition. This findings concurs with the findings of a study conducted by (Mwirigi & Theuri, 2012) in relation to the challenge associated with value addition of seafood value chain in the Kenyan north coast, the findings were that there are inadequate facilities to undertake value addition. The finding is also buttressed by those of (Akanbi, 2016), whose outcome of the findings from majority of respondents indicated that major constraints limiting the fish farmers production included but was not limited to poor access to electricity. The findings of (Salagrama, 2015) in his study on opportunities in relation on strengthening value chain of small scale fishers also cited infrastructure as an important enabler towards enhancement of value addition. The implication of this study is that infrastructure is a key component that is of significance to fish value addition. Infrastructural amenities are an important enabler to fish value addition activities. An increase in infrastructural development therefore has a positive influence to fish value addition.

**Human Capital for fish trading**

The researcher sought to investigate the influence of human capital on fish value addition. To respond to this question, the respondents were required to indicate to what extent they agreed with the statement. The summary of the findings is as presented in Table 4.10.

**Table 4. 6:**

*Descriptive Results of Human capital among fish traders in Mombasa County*

| Statement | N % | SA | A | N | D | SD | conclusion |
|---|---|---|---|---|---|---|---|
| Entrepreneurship skills | n | 23 | 21 | 15 | 7 | 1 | Agree |
| | % | 34.33 | 31.34 | 22.39 | 10.45 | 1.49 | |
| Human capital development | n | 22 | 20 | 16 | 6 | 3 | Agree |
| | % | 32.84 | 29.85 | 23.88 | 8.96 | 4.48 | |
| Innovation | n | 16 | 19 | 21 | 7 | 4 | Moderate agree |
| | % | 23.88 | 28.36 | 31.34 | 10.45 | 5.97 | |

From the findings shown in Table 4.6, most of the respondents 23 (34.33%) indicated that they strongly agree that entrepreneurship skills influences fish value addition. 21 (31.34%) indicated they agree, 15 (22.39%) indicated indifferent/neutral response, 7(10.45%) indicated they disagreed; while 1 (1.49%) said they strongly disagreed with the statement. Also a significant majority 22 (32.84%) of the respondents strongly agreed that human capital development influences fish value addition. 20 (29.85%) agreed with this statement, another 16 (23.88%) were indifferent/neutral with the statement, while 6 (8.96%) indicated that they disagreed with the statement while 3 (4.48%) strongly disagreed. Further table 4.10 shows that majority of the respondents

21 (31.34%) were indifferent/neutral to the statement that innovation has an influence on fish value addition. 19 (28.36%) strongly agreed with the statement, 16 (23.88%) strongly agreed. 7 (10.45%) disagreed while 4 (5.97%) strongly disagreed.

From the responses given, this implies that human capital has an influence on fish value addition. This finding concurs with that of (Furtan & Sauer, 2008) in his study on the determinants on performance of food industry. The finding was that high quality human capital had an important role and whose outcome had positive influence of staff education levels on value addition.

The finding of Josan (2013), on the relationship between human capital and organizational performance also indicated that competitiveness depends on skills human capital investment. This outlines the critical role of human capital on organization performance. The human capital theory outlines the importance of competencies and skills in advancing organization performance. Towards achievement of this, education is considered an investment owing to the fact that it is considered to have the potential to positively impact on both social and private fronts.

### a) Government Policy on Fish Value Addition

The researcher sought to investigate the influence of government policy on fish value addition. To respond to this question, the respondents were required to indicate to what extent they agreed with the statement. The summary of the findings is as presented in Table 4.7.

**Table 4. 7:**

*Government policy on fish value addition*

| Statement | n/% | SA | A | N | D | SD | Total |
|---|---|---|---|---|---|---|---|
| Licensing requirement | n | 28 | 14 | 20 | 3 | 2 | Agree |
| | % | 41.79 | 20.90 | 29.85 | 4.48 | 2.99 | |
| Policy framework | n | 7 | 28 | 23 | 4 | 5 | No consensus |
| | % | 10.45 | 41.79 | 34.33 | 5.97 | 7.46 | |
| Regulatory framework | n | 12 | 24 | 22 | 5 | 4 | Moderately agree |
| | % | 17.91 | 35.82 | 32.84 | 7.46 | 5.97 | |
| Enabling environment | n | 31 | 14 | 18 | 2 | 2 | Agree |
| | % | 46.27 | 20.90 | 26.87 | 2.99 | 2.99 | |

From the findings shown in Table 4.7, most of the respondents 28 (41.79%) indicated that they strongly agreed that licensing requirement influences fish value addition. 20 (29.85%) were indifferent/neutral, 14(20.90%) agreed, 3(4.48%) indicated they disagreed; while 2(2.99%) strongly disagreed. Also a significant majority 28 (41.79%) of the respondents agreed that policy framework influences fish value addition activities. 23 (34.33%) were indifferent/neutral, another 7 (10.45%) strongly agreed with the statement, while 5 (7.46%) indicated that they strongly disagreed with the statement.

Further table 4.7 shows that majority of the respondents 24 (35.82%) indicated that they agreed that regulatory framework has an influence on fish value addition with 22 (32.84%) were indifferent/neutral with this statement. Further 12 (17.91%) of the respondents indicated they strongly agreed with the statement. 5 (7.46%) of the

respondents disagreed while 4 (5.97%) strongly disagreed. On the opinion that an enabling environment influences fish value addition a majority 31 (46.25%) strongly agreed with the statement, 18 (26.87%) were indifferent, 14 (20.90%) of the respondents agreed with the statement, 2 (2.99%) of respondents disagreed while another 2 (2.99%) of the respondents strongly disagreed with the statement.

From the responses given, this implies that government policy has an influence on fish value addition. (De Silva, 2011) , in his findings, also observed that government policies were necessary for reduction of power imbalances in the governance structures, ensuring low political intervention in community level organizations, for resolving socio-cultural and environmental concerns and strengthening of the weak financial structure. The findings in a study by (Kumar A. , 2010) also indicate that state and non-state actors have important roles to in enhancing fish value chains. Value Chain Theory is an idealistic theory that calls for the development of the value chains to support activities that are associated with value enhancement. For this reason, the state and non-state actors have the roles of putting in place enabling guiding tenets, improvement of business environment and sustaining trading activities through provision of workable policies.

### b) Training among of fish traders in Mombasa County

The researcher sought to investigate the influence of training on fish value addition. To respond to this question, the respondents were required to indicate to what extent they agreed with the statement. The summary of the findings is as presented in Table 4.8.

**Table 4.8:**

*Descriptive Results of Training on Fish Value Addition*

| Statement | Descriptive | SA | A | N | D | SD | Total |
|---|---|---|---|---|---|---|---|
| Literacy level | Frequency | 24 | 19 | 17 | 6 | 1 | **Agree** |
| | Percentage | 35.82 | 28.36 | 25.37 | 8.96 | 1.49 | |
| Training on health and safety aspects | Frequency | 23 | 21 | 20 | 2 | 1 | **Agree** |
| | Percentage | 34.33 | 31.34 | 29.85 | 2.99 | 1.49 | |

From the findings shown in Table 4.8, most of the respondents 24 (35.82%) indicated that they strongly agree that literacy level influenced fish value addition. 19 (28.36%) indicated they agreed with the statement, 17 (25.37%) were indifferent/neutral, 6 (8.96%) indicated they disagreed; while 1 (1.49%) said they strongly disagreed with the statement. Also a significant majority 23 (34.33%) of the respondents strongly agreed that training on health and safety influenced fish value addition. 21 (31.34%) agreed with this statement, another 20 (29.85%) were indifferent/neutral, 2 (2.99%) disagreed while 1 (1.49%) indicated that they strongly disagreed with the statement.

The responses given have implications and indicate that training has an influence on fish value addition. This finding is also supported by the findings of (Mamo et al., 2014) which indicated that education of the household head positively and significantly

influenced the likelihood of involvement in value addition. A study conducted by (Ogola & Wanjau, 2013) also reinforced through their findings which indicated that in leather manufacturing.

**Value addition among Fish traders in Mombasa**

In this study, Value addition is the dependent variable measured using four indicators. The respondents were requested to indicate extent of agreement or disagreement regarding how Value Addition has helped them achieve increased prolonged shelf life, increased product range, increased fish availability to customers and increased convenience of fish to customers. Table 4.9 shows a summary of the results of the responses

**Table 4. 9:**

*Descriptive Results of Value Addition among Fish traders in Mombasa*

| Statement | SA % | A % | N % | D % | SD % | Decision |
|-----------|------|------|------|------|------|----------|
| Prolonged shelf life | 24.34 | 34.33 | 27.39 | 10.46 | 3.48 | Agree |
| increased product ranges | 34.78 | 33.88 | 13.43 | 16.42 | 1.49 | Agree |
| increased availability | 43.28 | 34.33 | 10.45 | 8.96 | 2.99 | Agree |
| Increased convenience | 38.76 | 29.87 | 13.43 | 10.46 | 4.48 | Agree |

Assessing the results on the basis of the proportion of respondents who agreed versus disagreed; it is observed that, a total of 58.67%-(24.34 +34.33)- of respondents agreed that they have achieved prolonged shelf life of their fish, only a total of 13.94% (10.46+3.48) disagreed. The results are an indication that most of the fish traders in Mombasa County are able to achieve prolong fish shelf life as a form of Value Addition.

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Also the result shows that, a total of 59.75% - (34.78+33.88) - approved that they are able to increased product range as form of Value Addition. The results imply that more than half of the fish traders are able to achieve value addition through increasing more product range. Similarly, more than three quarters of the fish traders- 77.61%- attained value addition through increased availability of the fish products to their clients. Also the result shows that about three quarters of the fish traders in Mombasa are able to increase convenience of their fish and fish products to their clients. Overall, it is concluded that value addition is an important activity among the fish traders. This conclusion is based on the observation that a majority of the respondents are able to realize value addition in all the four Value addition indicators.

## 4.6 Relationships between study variables

While the previous sections are basically descriptive analysis that is a description of the univariate statistics of the variables, the current section is dedicated to the analysis of relation among the variables, and it is the chore section of the study. Two techniques are important in studying relationships between variables; correlation and regression analyses. In this study, they are used to study the relation between the Independent Variables and value addition as the dependent variable. The correlation analysis is presented, then regression analysis.

### Correlation analysis

The data from the traders was subjected to Pearson's correlation analysis to establish nature and strength of association between variables of interest. The results of the Correlations are tabulated in Table 4.10.

**Table 4. 40:**

*Correlation results between variables*

| | Infrastructure | Policies | Human Capital | Training | Value Addition |
|---|---|---|---|---|---|
| Infrastructure | 1 | .446[**] | .511[**] | .553[**] | .654[**] |
| Policies | .446[**] | 1 | .556[**] | .633[**] | .613[**] |
| Human Capital | .511[**] | .556[**] | 1 | .676[**] | .551[**] |
| Training | .553[**] | .633[**] | .676[**] | 1 | 620[**] |
| Value Addition | .654[**] | .613[**] | .551[**] | .620[**] | 1 |

*\*\* Correlation is significant at the 0.01 level (2-tailed). N=67*

The intercorrelations result shows that each independent variable is positively and significantly related with each other. The highest correlation coefficient being between the training and Human capital (r=.676, p<.001) and the lowest is between the Government policies and infrastructure (r=.446, p<.001). These intercorrelations results have two implications. First, the positive correlation result implies that the variables changes in the same direction and the moderate correlation is an indication that multicolinearity is not likely to arise in the multiple regression (Daoud 2017)

The correlation results between Independent Variables and value addition as the dependent variable form the chore focus of this study, therefore the rest the discussion is now analysing the correlation results between the independent variables and value addition. In overall, the result shows that each independent variable is positively associated with value addition meaning that each variable is positively associated to value addition. Specifically, fish infrastructure is positively associated with value addition as shown by a moderate correlation coefficient of 0.654. The result means that

improved infrastructure in the county for the fish trader's favours value addition and on the other hand, poor infrastructure favours low value addition.

The correlation results also show that government policies and regulations on fish trade (r=.613, p<.001) are positively and significantly associated with value addition meaning that if the county government sets up favourable policies and regulations for fish traders, more fish value addition is realized than when the policies are not favourable. The result shows that the fish trading policies in the region, which can sometimes be favourable or unfavourable to fish trading, are critical to do value addition and government and other regulatory bodies play a direct role in the overall value addition in the region. Favourable policies entails removing the bottlenecks the traders face along the fish value chain in the form of taxation, concessions, marketing regulations or other forms of regulation in the fishing industry.

The implication of these correlation results is that the county government that enacts favourable trade incentives policies, tax concessions policies and trade licensing policies for fish trading can encourage fish trade and motivate local entrepreneurs to engage in value addition along the fish value chain. Empirical studies by Kumar (2010) found that state and non- state actors are more than ever hatching schemes that assist fishermen in Kenya market their catches more efficiently as a form setting up favourable trading conditions and therefore giving a strong support for the current study to advocate that the fishing regulators in Mombasa County in conjunction with the ministry concerned need to ensure that policies and acts that provide for regulations that support

the development of fisheries in the region are in place. It is the hope of this study that the revitalized fish value addition and its positive multiplier effect will stir the economic activities in the region, create the coveted and scarce job opportunities in the region and improve the living standards of the people of the region as well.

Human capital, which refers to the knowledge, expertise, and skill one accumulates through education and training and the correlation statistics between Human capital and value addition in fish trading in Mombasa County shows that the two variables are positively and significantly related (r =.551, p<.001). The result means that individual traders or their employees that have a bundle of suitable skills and knowledge in fish trading will most likely do value addition than individual with less such qualities. The findings are in line with Human capital theory that explains the overall positive role of workers as an asset on the business performance.

According to these findings, and as noted in literature that the current organizational trends are steadily shifting towards knowledge economy where human capital play a critical role. This study results means that individual fish traders or small and large fish handlers who invest in human capital through training and retention of skills and knowledge people are more likely to transform the fish trade in the region into an economic hub due to stimulated fish value addition.  These correlational findings together with the human capital theory provides new knowledge that human capital embedded among fish traders in Mombasa County, is a critical determinant of the fish value addition in the region and therefore a critical developmental strategy fish

stakeholder can work on to enhance the regions development agenda. In this regard, the ever job opportunities needed can be realized arising from value addition activities.

The correlation results show that the level of training of fish traders acquires on fish related issues has a significant positive association with fish value addition (r = 0.620, P<.001). The relation results mean that more education and training on fish trading traders acquires regarding fish, the more is the value addition activities among the fish traders in Mombasa County. Therefore, according to the results, the fish value addition can be increased in the region if the favourable conditions are set in place to enable fish traders to invest in developing fish handling and trading skills through training of the current employees in modern methods along the fish value chain. This can be the effective way to achieve regional development because Human capital and resource based view theorists argue that skilled, well trained and experienced employees are strategic resource organizations exploit to achieve sustainable competitive advantage. In regard to the research question in this study regarding level of training of fish traders, on the basis of these correlation results, the researcher states that training has positive influence on value addition among fish trading in Mombasa County.

So far the correlation analysis has established that there is a significant association between the independent variables and the dependent variable; value addition. Value addition is a significant approach and concept in today's business environment where innovation in farming and agrifood processing are important for any enterprise to remain

competitive and to optimize returns from business venture. However, correlation is unable to account the influence of one variable on the other. Regression analysis on the other hand has the predictive power of the influence of one variable on another. The next section investigates the influence of the Independent Variables on the dependent variable using the regression technique.

**Regression Analysis**

**Regression Assumptions**
Regression analysis is a powerful statistical method that examines the influence of an independent variable on a dependent variable. It helps to identify which variables have impact on a dependent variable and therefore it is a useful technique to statistically determine the factors that matter most, which factors can be ignored, and how these factors influence each other. In this study it is used to test the effect of selected independent factors on fish value addition in Mombasa County.

The justification for the use of linear regression models for purposes of inference or prediction are based on four principal assumptions. They are linearity, constant variance, normality and multicollinearity. According to Schmidt and Finan (2018), violation of any of these may cause forecasts, confidence intervals, and scientific insights yielded by a regression model are inefficient or (at worst) seriously biased or misleading. And for this reason, the data set obtained from fish traders is first subjected to the assumption tests prior to conducting the regression.

The multivariate regression assumes that the independent variables are linearly related with the dependent variable. The linearity is tested using either scatter plot or using the

Q-Q plots visualization and in this study the scatter plots of residuals versus fitted values was used as shown in figure 4.17. Nonlinearity is evident in a plot of residuals versus predicted values if the distribution of the data points is symmetrical around horizontal line with a roughly constant variance. Examination of the results in figure 4.17 also indicate that the condition is met. The results shown in that relationship depicts a linear trend

**Figure 4.17:**

*Scatter plot of residuals versus fitted values*
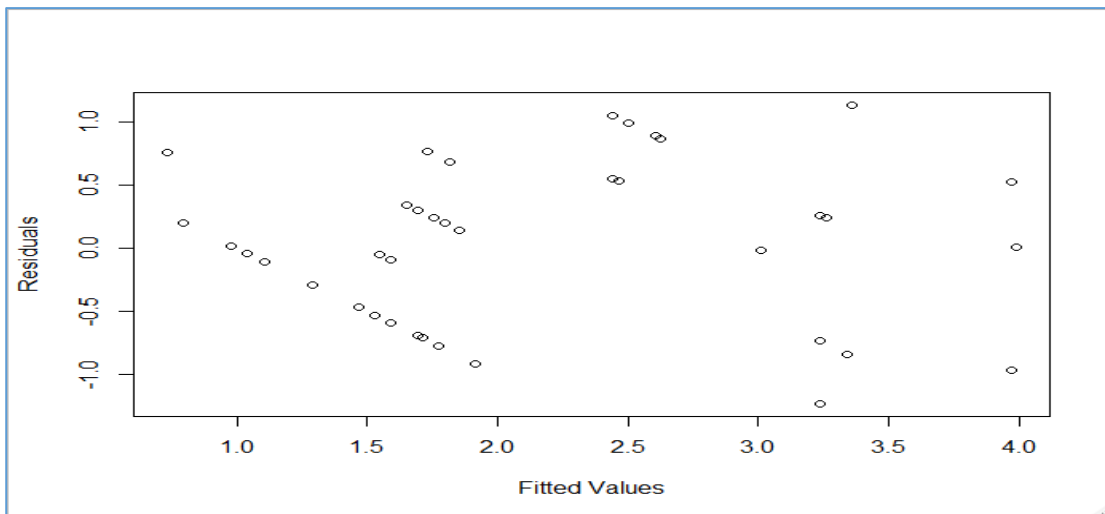


The normality assumption is tested using either the Quartile -Quartile plots (Q-Q) or using the histogram of residuals. In the Q-Q PLOT TEST, if most data points are symmetrically distributed along the 45-degree diagonal line then the residuals are Gaussian (Schmidt & Finan, 2018). The results presented in figure 4.17 shows that the points for this study lie almost on the diagonal line and are symmetrically distributed along the line leading thus concluding that the residual exhibited multivariate normality and therefore the normality assumption is met. Further the histogram results in the figure

4.17 shows that the data residuals do not display significant departure from normal bell shape meaning that the normality assumption was met and therefore no need of data transformation.

**Figure 4.18:**

*Histogram of residuals and Q-Q plots*
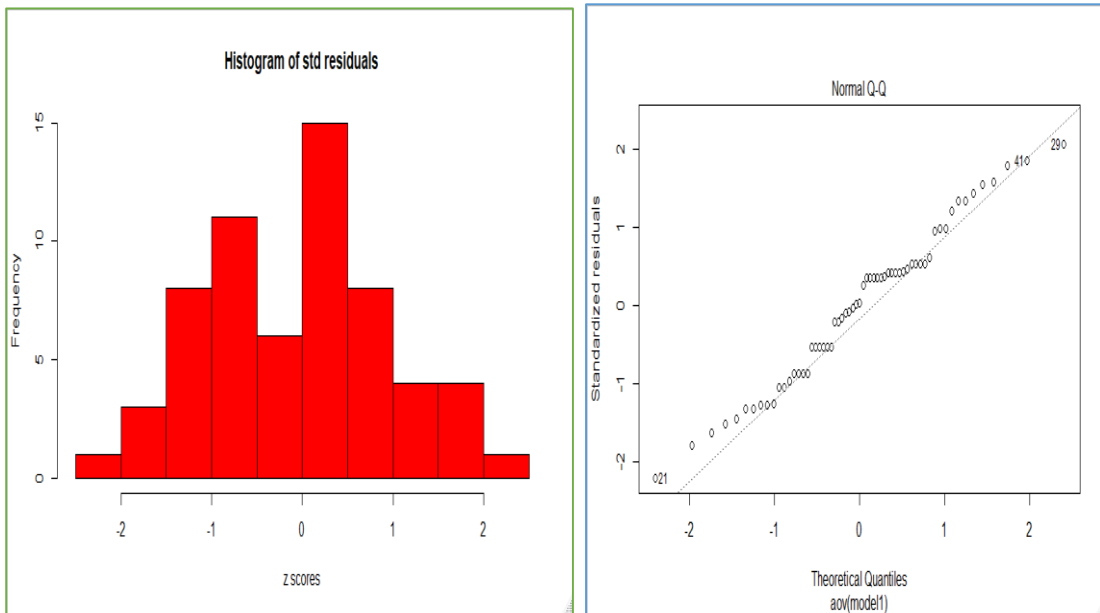


The other linear regression assumption is that variance of residuals is constant (Homoscedasticity) across the values of the dependent variable. The assumption states that the variance of error terms should be similar across the values of the dependent variables. A plot of standardized residuals versus predicted values are used to test for this assumption in the graphical approach or the use statistical test like the Breush-Pagan test in which a significant p value leads to the rejection of the null hypothesis that the variance of the residuals is constant. The Breush-Pagan test results obtained in this analysis indicate a non-significant Breush-Pagan statistic value (BP = 0.011192, df = 4,

p-value = 0.9157). The significant p value means that the null hypothesis is true and therefore the research infer that the data has constant error variance (homoscedasticity).

Linear regression also assumes that the there is no high correlations among the predictor variables and his assumption is usually checked using either the correlation matrix of independent variables in the model or Variance Inflation Factor. A correlation coefficient greater than .7 suggests significant multicolinearity meaning that the two variables in question essentially measure the same concept. A look at the earlier correlation results in Table 4.18 suggests that the data does not significantly suffer from multicolinearity problem because all the correlations are far below threshold value of .7, therefore the indication are that multicollinearity is not likely to exist in the dataset.

As stated in the forgoing paragraph, Variance Inflation factor is also used to assess multicolinearity in a dataset (Garson 2012) and was also used in this study. The Variance Inflation factor values obtained in the regression output table 4.15 show that values are all small (less than 5) as required meaning that the regression coefficient estimates obtained in this study are not significantly inflated. Hayes, and Cai, (2007) and Maas and Hox, (2004) state that presence of multicolinearity inflates and biases the regression estimates and should ideally be less than 5. The Variance Inflation Factor results vindicated the application of linear regression in this study to the dataset so as to estimate the real effect of each factor on value addition among fish traders in Mombasa County.

**Table 4. 51:**

*Multicolinearity test-VIF*

| Model | | Colinearity Statistics | |
|---|---|---|---|
| | | Tolerance | VIF |
| | **(Constant)** | | |
| **1** | Infrastructure | .559 | 1.789 |
| | Policies | .516 | 1.939 |
| | Human capital | .518 | 1.930 |
| | Training | .450 | 2.221 |

Having check and ascertained that there is no significant violation of the principal regression assumptions and therefore the justification of conducting a valid regression procedure, data pertaining to the independent variables was regressed on the dependent variable without any transformation so as to explore the causal effect of each Independent variable on value addition in Mombasa County. The regression results are presented in the next subsection 4.4.2

**Simple regression**

On the onset of the regression, each independent variable is regressed with value addition as the Dependant Variable to determine the simple influence of each Independent Variable on Dependant Variable. The overall, aim of first running a simple regression is to select variable to be used in multiple regression. So it is a variable selection process for the more practical multiple regression analysis. Simple regression is not sufficient in testing hypothesis because it does not take into consideration that independent variable shares common variance in explaining the Dependant Variable Selection. Four simple linear regressions are run and the results is consolidated in Table

4.12. The key component of this simple regression as a variable selection process is whether the independent variable is a significant predictor of the Dependant Variable at 5 Percent level of significant.

**Table 4. 12:**

*Summary of bivariate regression*

| IV | DV | Estimate (s.e) | $R^2$ | ANOVA, F |
|---|---|---|---|---|
| Training | Value Addition | 1.738*(.650) | .406 | 27.145* |
| Infrastructure | Value Addition | 1.036**(.158) | .411 | 42.988*** |
| Capital | Value Addition | .482*(.140) | .378 | 36.567* |
| Policies | Value Addition | .535*(.150) | .420 | 28.929* |

*. Significant at 0.1, ** significant at 0.05, *** significant at 0.01, s.e =standard Error,

From the results of bivariate regression, the four regression estimates are of Training level (1.738) is significant at 5 % level. Similarly, the Fish Business Infrastructure (1.036), Capital (.482) and policies (.535) showed significant explanatory power of fish value addition in the Mombasa County. So at bivariate level, these results provide answers to the four research questions.

The R squared value and the F values collectively assess the fitness of the model. The R squared for Training model is .406 meaning that the training of fish traders account for 40.6 percent of value addition in the county. The Analysis of Variance, ANOVA, of

the training model is significant at 0.05 significant level, indicating that the model is fit

to predict Value addition among fish traders based on the level from training of traders

on fish business alone.  Similarly, the R square and F statistic indicate that the simple

regression models are fit models. Therefore, the four independent variables can be

modelled together in multiple regression as potential predictors of fish value addition in

Mombasa County. Unlike the simple regression, the advantages of multiple regression

modeling for hypothesis testing is that it allows the model variables to exhibit their

respective explanatory power on the Dependent Variable.

**Multiple linear Regression**

The three typical regression output results; Model summary, ANOVA and coefficient

Output tables, are presented and labelled as table 4.13, table 4.14 and table 4.15

 Respectively.  A detailed discussion of each output is presented in that order.

**Table 4. 63:**

*Model Summary*

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|-------|-----|----------|-------------------|----------------------------|
| 1 | .762[a] | .580 | .553 | .73685 |

The model summary results in table 4.16 presents both the adjusted and unadjusted

R square statistics to evaluate how well the model fits the data (the quality of the model)

in assessing the causal effect of each independent variable on value addition. Since the

$R^2$ increases with the increase in number of covariates in a multiple linear regression

model, adjusted $R^2$ is the most realistic estimate of the proportion of the variation that

is predicted by the covariates included in the model and therefore in this study, adjusted

R square value is used for our interpretation of the results.

From the output results the adjusted R square obtained for this study is .553 indicating that the four factors in the model account for about 55.3 % of the variance in value addition and the other remaining proportion (44.7%) is due to other factors other than the ones in the model. Our R square value obtained is quite good in social sciences studies because, according to Simonetti et al., (2017), unlike in pure sciences where behaviour of particles is predictable, human behaviours and therefore their behaviours as measured by their responses in a survey are not accurately predictable because of the influence of prevailing factors during the survey. Again, in the words of famous scholars in mediation analysis (Lachowiczet al., 2018), there are a number of other intervening variables that influence a model which were not within the scope of this study.

The second regression output results is the ANOVA results in table 4.14, it offers the F statistics that evaluates the overall goodness of the model (Sanderson & Windmeijer, 2016). The result of this analysis got an F value of 21.408 and a significant p value= 0.00 thus providing the sufficient evidence against the null hypothesis that the model coefficients are not different from zero. A significant F statistic is evident against the null hypothesis that the regression coefficients are not statistically different from zero (Plonsky & Oswald, 2017, Hox, et al, (2017)

**Table 4.14:**

*ANOVA of training, Infrastructure, Policies, Human capital on Value Addition*

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| | Regression | 46.493 | 4 | 11.623 | 21.408 | .000[b] |
| 1 | Residual | 33.663 | 62 | .543 | | |
| | Total | 80.157 | 66 | | | |

This ANOVA results imply that the regression model of this study is significant to make inferences and prediction on the causal relation between the four predictor variables and value addition. The final regression output is the coefficient output which provides the coefficient of each predictor and its associated p values that enabled this study evaluate the individual effect of each Independent variable on value addition model in fish trading in Mombasa County so as to answer the research questions. The results presented in table 4.15.

**Table 4.15:**

*Coefficients of training, Infrastructure, Policies, Human capital on Value Addition*

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | |
| | (Constant) | -.233 | .274 | | -.849 | .399 |
| | Infrastructure | .376 | .097 | .393 | 3.860 | .000 |
| 1 | Policies | .265 | .101 | .288 | 2.626 | .011 |
| | Human capital | .060 | .094 | .075 | .638 | .526 |
| | Training | .129 | .097 | .170 | 1.331 | .188 |

The results indicate that the infrastructure ($\beta$=.376. p<.001) have significant influence on fish value addition in Mombasa County.  The regression coefficient for infrastructure coefficient is .376 meaning that, if other factors are kept constant an increase in infrastructure by 100%, the value addition increase by 37.6% meaning there is sufficient evidence that for the current study to conclude that infrastructure is an important enabler towards enhancement of value addition in Mombasa County. On the basis of this evidence, the study further argue that the low level of value addition cited in the problem statement and also in the study background can be attributed to the prevailing infrastructure conditions in fishery subsector in the county.

In the context of this study, fish business infrastructure in the fish sector comprise a range of factors ranging from fishing restrictions, transportation, preservation, marketing importing/exporting restrictions. As noted in the review of literature and theories, this infrastructure can be supportive or non-supportive to fish trading depending on the effectiveness of sector players. It requires a number of stakeholders to streamline these infrastructure conditions as a strategy to generating income, employment, and foreign exchange earnings to the fishing communities, fish traders, fish processors and fish farmers through value addition.

The results mean that the county government, as principal stakeholder and other actors in the sector need to work towards removing barriers along the fish value chain which includes long many market intermediaries, long delays in market access; and lack of

control for the value chain actors on issues related to markets or market information and lack of coolers and ice distributions. Constraints features issues to do with transportation, inadequate capital, inadequate basic infrastructure, product spoilage, lack of market information and price fluctuation.

The beta coefficient for fish related policies is 0.265. it has an associated p value of .011 which is significant since it is less than the threshold maximum value of 0.05 this results means that, holding other factors constant, a 100% increase in efficiency regarding fish handling policies will result in 26.5% increase in value addition and vice versa. The results provide sufficient evidence for this study to infer that that the prevailing fish policies have significant positive influence on fish value addition and therefore a key predictor of value addition among fish traders in the county. The low level of fish value addition in the county study has regression coefficient for Human Capital is $\beta=.060$ meaning that it has a positive influence on value addition though the p value obtained (p=.526) indicates that the influence is not statistically significant meaning that the effect of human capital has a small positive effect on value addition in the county fish trading business. The results imply the fish traders face the 21$^{st}$ century Human resource challenges to meaningfully invest in human capital that has the potential to revitalize value addition. Being small scale traders, typically they face capital challenges and knowledge to invest in employee education and training for improved levels of quality and productivity of employees.

Other challenges include the ever-changing environment that provides both the opportunities and threats to the human resource management of the fish traders or companies dealing with fish. Also, some costly labour laws are not in the interest of an enterprise, lack of skills, individual employee challenges, organizational challenges and workforce diversity are some of the 21$^{st}$ Century bottlenecks organizations face to maximize the benefits of human capital in their enterprises.

Training ($\beta$=.129, p=.188) has a positive non-significant effect on value addition as indicated by a p value greater than the maximum threshold of 0.05. Training is an aspect of human capital and therefore undergoing similar challenges. Based on the resources based View, organization that have limited resources, a typical of small fish traders in Mombasa county, find difficulties to train and create a competitive team of employees to foster value addition.

With limited training, challenges are eminent but training help traders attain valuable knowledge important to succeed in the current competitive environment. As businesses environment become complex, the demand for more skilled and experienced workers to fill up the more challenging and complicated tasks becomes a necessity. Eventually, traders and the county stakeholders recognize the vitality of attaining continued knowledge and skills in valued addition. Although training is expensive especially for sole traders, who comprise the majority. The estimated regression coefficient of the study model equation (5) are fitted to obtain the equation (6)

$$Value\ addition = b0 + b1HumanCapital + b2GvtPolicies + b3Training +$$

$$b4INfrustructure$$

<div align="right">(5)</div>

$$Value\_Add = -.060Humancapital + .376Infrastructure + .265Policies + 0.129Training$$

<div align="right">(6)</div>

The results collectively demonstrate that the key determinants of fish value addition are infrastructure and government policies. Interestingly, these significant factors; infrastructure and government policies are external factors to the fish traders meaning that the fish traders can only improve their competitiveness in fish value addition by exploiting their internal strengths to overcome the negative effects of these factors on their efforts to have high value products. Studies have shown that higher value products secure social and economic benefits of increased net returns and gain in other multiplier benefits from value addition.

## 4.7 Chapter Summary

This study was guided by four research questions relating selected independent factors and fish value addition and the regression results provided the statistical evidence answer to the four research questions. There is overwhelming statistical evidence to respond to the questions by stating that infrastructure and government policies have a significant effect on fish value addition. Human capital and employing training have a `positive but non-significant effect on value addition in Mombasa County.

The researcher studied 76 subjects from the various fish value chain actors comprising of both large and small fish traders within Mombasa County. The study findings also

found out that a majority of the fish traders, 29 (43%) traded in other types of fish, 15 (22%) traded in tuna and 9 (13%) traded in tilapia among others. The implications of these findings are that 51 (76%) of the respondent's trade on marine fish and fishery products while 16 (24%) of the respondents traded on fresh

The research found out that a majority of the fish traders, 64 (96%) engaged in freezing as their preferred value add strategy, 2 (3%) engaged in both freezing and frying as their preferred value add strategy while 1 (1%) engaged in frying as their value add strategy. The implication is that freezing is the dominant value addition practice embraced by the fish traders. Further processing would transform the fish from its original state into a more valuable fish product. Further findings indicate that there are several motivating factors that make fish traders to engage in value addition activities. Generation of income and prolonging of shelf life were identified the single most preferred motivation drivers. Other reasons were diverse, closely interdependent and intertwined thereby indicating that more than one reason constituting 48% of total respondents acted as a motivator to fish traders for engaging in value addition.

The research revealed 88% of the fish traders surveyed have not received training regarding fish handling and safety thus suggesting that the businesses traders do not have the knowhow, knowledge and technologies of modern methods necessary in value addition. The implication of this is that lack of training on fish handling and safety is a major impediment that affects adoption of fish value addition. Owing to this, the fish

traders are ill equipped to engage in extensive value addition. Power supply (31%) and absence of government support (31%) are the trader's major challenges. The other challenges include lack of equipment (16%), lack of processing facilities (15%) and lack of skilled manpower (14%). Other challenges cited are road infrastructure (10%) and water supply (11%). Further examining these challenges cited in this study, it is clear that they are either resources or capabilities based, and according to the Resource Based Theory, limitation in resources spells doom for any organization to create a competitive advantage.

From the findings, there are diverse water sources for fish value addition and borehole/shallow well is the major source of water for value addition. The research findings were that a majority of the respondents, 61 (91%) used freezer/ fridge/chiller being the dominant equipment owned by the fish traders, opportunities of engaging into full scale fish value addition is limited.

In overall, the result shows that each independent variable is positively associated with value addition meaning that each variable is positively associated to value addition. Specifically, fish infrastructure is positively associated with value addition as shown by a moderate correlation coefficient of 0.654. The correlation results also shows that government policies and regulations on fish trade (r=.613, p<.001) are positively and significantly associated with value addition Empirical studies by Kumar (2010) found that state and non- state actors are more than ever hatching schemes that assist fishermen

in Kenya market their catches more efficiently as a form setting up favorable trading conditions.

Human capital, which refers to the knowledge, expertise, and skill one accumulates through education and training and the correlation statistics between Human capital and value addition in fish trading in Mombasa County shows that the two variables are positively and significantly related (r =.551, p<.001). The findings are in line with Human capital theory that explains the overall positive role of workers as an asset on the business performance. The correlation results show that the level of training of fish traders acquires on fish related issues has a significant positive association with fish value addition (r = 0.620, P<.001).

The results indicate that the infrastructure ($\beta$=.376. p<.001) have significant causal effect on fish value addition in Mombasa County. The beta coefficient for fish related policies is 0.265. it has an associated p value of .001 is significant since it is less than the threshold maximum value of 0.05 this results means that, holding other factors constant, a 100% increase in efficiency regarding fish handling policies will result in 26.5% increase in value addition and vice versa. However Human Capital is $\beta$=.060 and Training ($\beta$=.129, p=.188) has a positive non-significant effect on value addition

# CHAPTER FIVE

## SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

### 5.1 Introduction

This chapter deals with the summary of the findings, recommendations and conclusion. This was done in line with the objectives of the study and addresses key outcomes from the study.

### 5.2 Summary

The purpose of the study was to identify factors that influence value addition among fish traders in Mombasa County and the specific objectives were: To determine the influence of infrastructure on value addition among fish traders in Mombasa County, to establish the influence of human capital on value addition among fish traders in Mombasa County, to identify the role of Government Policy on value addition among fish traders in Mombasa County and finally to determine the influence of training on value addition among fish traders in Mombasa County. This study was guided by four research questions relating selected independent factors and fish value addition and the regression results provided the statistical evidence answer to the four research questions.

**Research Question No. 1: What is the influence of infrastructure on value addition among fish traders in Mombasa County?**

The descriptive results showed that the traders agreed that fish infrastructure is an important determinant of fish value addition. The regression of infrastructure variable on fish value addition reveal that infrastructure alone is a significant predictor of value addition. In the multiple regression, the infrastructure ($\beta=.376.$ p<.001) also showed significant effect on fish value addition in Mombasa County. Considering infrastructure coefficient results, it means that an increase in infrastructure by 100%, the value addition increase by 37.6%.

**Research Question No. 2: What is the influence of human capital on value addition among fish traders in Mombasa County?**

Although Human Capital ($\beta=.060$, p=.529) has positive effect, the effect is not significant at .05 significant level since its p values are greater than .05. However, the regression is significant in the simple regression model (($\beta=0.482$)

**Research Question No. 3: What is the influence of Government policy on value addition among fish traders in Mombasa County?**

Government policies ($\beta=.265$, p<.001) have significant causal effect on fish value addition in Mombasa County.  Similarly, a 100% increase in efficiency regarding fish handling policies results in 26.5% increase in value addition.

**Research Question No. 4: What is the influence of training on value addition among fish traders in Mombasa County?**

The simple regression showed a significant influence of training ($\beta$ =1.738*) on fish value addition. But, no significant effect was established at multiple regression analysis level ($\beta$=.129, p=.188). The effect of training was explained through other model variables in multiple regression model. The influence is positive for the simple and multiple regression models.

The results collectively demonstrate that the key determinants of fish value addition are infrastructure and government policies. Interestingly, these significant factors; infrastructure and government policies are external factors to the fish traders meaning that the fish traders can only improve their competitiveness in fish value addition by exploiting their internal strengths to overcome the negative effects of the external factors on their efforts to have high value products. Studies have shown that higher value products secure social and economic benefits of increased net returns and gain in other multiplier benefits from value addition.

**5.3 Conclusion**

**Influence of infrastructure on value addition among fish traders in Mombasa County**

The study established that there was a strong correlation between infrastructure and enhanced fish value addition. The finding indicates that by investing in infrastructural developments and amenities it can go a long way towards enhancing value addition

activities. Support towards enhancement of infrastructure is therefore necessary if value addition is to be uplifted.

**Influence of Government policy on value addition among fish traders in Mombasa County**

National and Mombasa County governments have the responsibility of ensuring that fisheries policies are pro- business and especially towards ensuring that they work for up scaling of fish value addition. Policies, legislations, operating guidelines and an enabling environment, are key towards actualizing enhanced fish value addition activities. The National and Mombasa County assemblies therefore have the responsibility in ensuring that efforts towards aligning value addition policies within the fisheries sector are in place. Towards this, the uptake of fish value addition shall increase and the contribution to national economic growth shall be enhanced.

 National and Mombasa County government's fisheries policies are critical in regulating the fisheries industry. The state agencies like, the State Department for Fisheries and Blue Economy, the Mombasa County Fisheries Sub department and Kenya Marine and Fisheries Research Institute (KEMFRI), therefore have an onus of streamlining the industry thereby assist in creating more avenues for adoption and up scaling of fish value addition strategies.

**Influence of human capital on value addition among fish traders in Mombasa County**

Fish traders also have the responsivity of working on their internal competencies. In this respect, they are to ensure that they engage competent personnel, adopt modern technologies and increase their internal capacities accordingly. They can work with relevant authorities and stakeholders to acquire relevant training and to re-train their staff on a regular basis. Through this they will be in a position to adopt best practices associated with fish handling and on food safety aspect. Investment on necessary fish value addition equipment is also an important aspect to consider.

All in all, the study is an eye opener and provides an insight on factors that are perceived to be an influence on fish value addition in Mombasa County. The findings suggest that there was minimal uptake of value addition strategies and most traders engaged in fish value addition at the lowest level where freezing/ chilling was widely embraced. From the findings of the study, the fish traders are yet to adopt modern and effective technologies which would see them produce diverse fish and fishery products for the wider market. The findings suggest that overreliance on freezing and chilling though beneficial in terms of increasing the shelf-life of the fish and fishery products, provides little enhancement in terms of real value addition. This makes the fish traders to lose out on the additional benefit that would accrue through production of diverse fish and fishery products, increased income and enhanced food security. The results show that fisheries stakeholders ought to seriously consider ways in which they can work closely

with fish traders towards enhancing fish value addition and hence, ensure a win-win situation to all within the sector and for the wider economic well-being of the County. The fish traders of Mombasa County should work towards identifying opportunities to create more value added products from fish. This will increase their potential for improved income and as a way of enhancing food and nutrition security through fish and fish products.

**Influence of training on value addition among fish traders in Mombasa County**

The study showed Training has a positive non-significant effect on fish value addition. A typical of small fish traders in Mombasa County, find difficulties to train and create a competitive team of employees to foster fish value addition. The demand for more skilled and experienced workers to fill up the more challenging and complicated tasks becomes a necessity.

**5.4 Recommendations**

From the conclusion made, the researcher would wish to make recommendations as follows:

**Influence of infrastructure on value addition among fish traders in Mombasa County**

There is need for County Government of Mombasa in collaboration with the National Government and relevant stakeholders to enhance fish trading and value addition infrastructure. They should work to enhance access to market, and ensure that there are

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established structures for the fish traders. They should also ensure availability of power supply, preservation equipment, waste disposal system, and also availability of piped water for Value addition.

There is need for improved infrastructural development by County Government of Mombasa, National Government, stakeholder non-state actors e.g. Development partners like Food and Agriculture Organization (FAO), World Food Programme (WFP), World Bank (WB), International Development Agency (IDA), United States Agency for International Development (USAID) and Non-Governmental Agencies like, Africa conservation Centre, Africa Wildlife Foundation, Aga Khan Foundation, East Africa Wildlife Society and Jamii bora among others, to assist fish traders in adopting and up scaling of fish value addition activities. In this respect, state and non- state actors should combine efforts to address this key requirement. This is because infrastructural projects are capital intensive necessary for fish value addition as the findings from the study indicates. Mombasa County and National Governments and non-state actors should come in to streamline infrastructural licensing, regulatory and policy frameworks for purposes of mainstreaming fish value addition activities. Towards this end, concerted efforts ought to be put in place to promote consumption of fish through wider and more proactive eat more fish campaigns.

**Influence of Government policy on value addition among fish traders in Mombasa County**

There is need to re-look on the fish value addition policies regulating fisheries business on infrastructure, government policies, human capital and training to help fish traders to be in a position to effectively embrace and thereby enhance fish value addition activities. The National and County Governments need to regularly revise the Licensing requirement on fish value addition in a view to make them of less stringent, have in place a clear and viable value addition Policy and regulatory framework to guide the trade to growth, by so doing the National and County Governments will create an enabling and motivating fisheries value addition business environment.

To the fish traders themselves, it is necessary for them due to lack of value addition activities, to work on enhancing their internal competencies to remain relevant through adoption of modern fish value addition strategies. It is the hope of this study that these recommendations will have a far reaching implication and help Mombasa County save a lot of lost revenues emanating from the great wastage in fish trading in the County.

**Influence of human capital on value addition among fish traders in Mombasa County**

Fish traders should invest on capacity building on fish value addition strategies is important to enhance entrepreneurship skills hence increased skills adoption. Towards this end, an investment on human capital development should be considered to upscale

fish value addition activities. Fish farmers and traders should also be encouraged to work on their internal capabilities. They can source for assistance from possible development partners, Non-Governmental Agencies, investors and through fish cooperatives societies. This will enhance their bargaining power, help them raise more capital and be able to invest in fish processing ventures. Formation of fish cooperatives societies will help build synergies and attract attention of funders and other willing partners. By participating in fisheries related exchange programs and through benchmarking, fish traders shall be able to learn from the best of the best fish traders on value addition within the Country and regionally.

## 5.5 Recommendations for Future Research

Owing to limitations of time and resources, the researcher only concentrated on the primary concerns in the study. From the study, the researcher identified that fish value chain is quite dynamic and it entails underlying issues which in one way or the other, may impede on the uptake of the value addition. Towards this end it may be necessary to determine the association of this dynamics with fish value addition activities.

There is therefore need for further research to determine other influencing factors in the fish value chain dynamics and its influence on the attitude of fish traders on value addition. This issue emerged in the process of the research but could not be investigated hence the need to be considered for future research.

# REFERENCES

Ahsan, K. & Gunawan, I. (2010). Analysis of cost and schedule performance of international development projects. *International Journal of Project Management, 28*, 68-78. DOI:10.1016/j.ijproman.2009.03.005

Akanbi, U. S. (2016). . Value chain analysis and the Performance of Small Scale Agri-business: Evidence from Cultured Fish Farmers Kwara State. ) . *Journal of Marketing Development (JMD), 1*(2), 85-102. https://www.researchgate.net/publication/319099824

Alam, N. (2016). *Supply and Value Chain of Fish in Super-shop Outlets in Dhaka Cit*. BAU Department of Fisheries Technology.

Armstrong, M. (2006). *A handbook of human resource management practice*. Kogan Page Publishers.

Aronson, S. L. (2013). Kenya and the Global War on Terror:Neglecting History and. *African Journal of Criminology and Justice Studies:, 7*, 25-34. https://www.umes.edu/uploadedFiles/_WEBSITES/AJCJS/Content/vol7.1%20aronson%20final.pdf

Barrick, M. R., Gatewood, R. D., & Feild, H. S. (2011). *Selection in human resource management.* Cengage Learning.

Barry, U. (2010). *Annual report on the United States seafood industry.* https://www.urnerbarry.com/ubbio.aspx

Bigliardi, B., & Bottani, E. (2010). Performance measurement in the food supply chain: a balanced scorecard approach. *Facilities, 28*(5/6), DOI: https://doi.org/10.1108/02632771011031493. 249-260.

Brewin, D. G., Monchuk, D. C., & Partridge, M. D. (2009). Examining the adoption of product and process innovations in the Canadian food processing industry. *Canadian Journal of Agricultural Economics/Revue canadienne d'agroeconomie, 57*(1), 75-97. https://doi.org/10.1111/j.1744-7976.2008.01139.x

Broeckling, J. (2010). *Performance Measurement: Theory and Practice. College of Professional Studies, Professional Projects. Marquette University*. http://epublications.marquette.edu/cps_professional

Bryde, D. & Wright, G. H. (2007). Project management priorities and the link with performance management systems. *Project Management Journal, 38*(4), 5–11. doi:10.1002/pmj.20014

Camilleri, E. (2016). *Project Success: Critical Factors and Behaviour.* Routledge.

Carter, C., Clegg, S. R., & Kornberger, M. (2008). So!apbox: editorial essays: Strategy as practice? *Strategic Organization, 6*(1), 83–99. https://doi.org/10.1177/1476127007087154.

Certification, F. M. (2018). *Certification, Financial Modeling and Validation Analyst* https://corporatefinanceinstitute.com/resources/knowledge/finance/what-is-value-added.

Chapelle, C. A. ( 2009). The Relationship between Second Language Acquisition Theory and Computer-Assisted Language Learning. *The Modern Language Journal, 93*,741-753. https://doi.org/10.1111/j.1540- 4781.2009.00970.x.

Chaput, L. (2011). *Project Design: Strategic Information; A Process Approach.* Presses de l'Université du Québec.

Commission, K. N. (2017). *Report on securing national security and protection of humanrights.*http://knchr.org/Portals/0/CivilAndPoliticalReports/Securing%20 National%20Security%20and%20Protection%20of%20Human%20Rights.pdf? ver=2017-06-29-161740-953

Counter Terrorism Committee. (n.d.). *United Nations Security Council.* https://www.un.org/sc/ctc/focus-areas/countering-violent-extremism/

Cristobal, J.R.; Carral L.; Diaz, E.; Fraguela, J.A.; Iglesias. G. (2018). *HIDAWI.* https://www.hindawi.com/journals/complexity/2018/4891286/

Damian, H & Svetlana C. (2006). New Possibilities for Project Management Theory: A Critical Engagement. *Project Management Journal*, 111 - 122. DOI:10.1177/875697280603700311

De Silva, D. A. (2011). *Value chain of fish and fishery products: origin, functions and application in developed and developing country markets. Food and Agriculture Organization.*http://www.fao.org/fileadmin/user_upload/fisheries/docs/Value_ chain_dynamics_and_the_small-scale_sec*tor.pdf*

Dekeyser, R. M., & Criado, R. (2013). *Automatization, skill acquisition, and practice in second language acquisition. In C. A. Chapelle (Ed.), The encyclopaedia of applied linguistics.* Blackwell.

Dragan, M & Russ J, M ( 2015). *Project management toolbox.* John Wiley & Sons, Inc.,.

Elger,D.(n.d.).*UniversityofIdaho.*https://www.webpages.uidaho.edu/ele/scholars/Results/Workshops/Facilitators_Institute/Theory%20of%20Performance.pdf

Elizabeth, D, Dr C. U. Gwam, Debbie Ariyo OBE & Meg Hillier. (2014). *Nigeria's Boko Haram Crisis: Abductions and Responses.* All Party Parliamentary Group onNigeria.https://www.chathamhouse.org/sites/files/chathamhouse/field/field_document/20140513APPGBokoHaram.pdf

Ellis, R., & Shintani, N. (2013). *Exploring language pedagogy through second language Acquisition research.* Routledge.

Elnaga, A., & Imran, A. (2013). The effect of training on employee performance. *European Journal of Business and Management, 5*(4), 137-147. https://www.iiste.org/Journals/index.php/EJBM/article/view/4475/0

Engetou, E. (2017). *The Impact of training and Development on Organizational Performance: Case Study of National Finance Credit Bank Kumba.* [Unpublished master's thesis] Centria University of applied sciences, Kokkola, Finland.

Eskandari, S., & Zeraatkish, Y. (2016). The effect of value added and export of fisheries on economic variables in the agricultural sector in Iran. *Aquaculture Development, 10* (3), 1-12 aqudev.liau.ac.ir/browse.php?a_id=402&slc_lang=en & si.

FAO. (2012). *World Review of Fisheries & Aquaculture*. www.fao.org.

FAO. (2014). *Global Aquaculture Production Statistics for the year, 2014.* www.fao.org;.

FAO. (2015). *The State of World Fisheries and Aquaculture, 2015.* http://www.fao.org/docrep/013/il820e/il820e01.pdf.

Faruque, M., Nazrul, K., Tonny, U., Islam, K., Dey, S., & Mona, S. (2015). Status of an ideal dry fish market of Bangladesh: A Study on Asadganj Dry Fish Market, Chittagong. *International Journal of Life Sciences Biotechnology and Pharma Research. 2(1), 107-116.*

Fearne, A., Martinez, M. G., & Dent, B. (2012). Dimensions of sustainable value chains: implications for value chain analysis. Supply Chain Management: An

International Journal, 17(6), 575-581. https://doi.org/10.1108/13598541211269193.

Furtan, W. H., & Sauer, J. (2008). *Determinants of Food Industry Performance – Empirical Evidence Based on a Survey. Selected Paper for presentation at the American Agricultural Economics Association Annual Meeting, Orlando, FL, July 27-29, 2008.* DOI: 10.22004/ag.econ.6422

Gareis, R. (2013). *Re-Thinking Project Initiation and Project Management by Considering Principles of Sustainable Development.* Austria & Roland Gareis Consulting.

Gatuiku, P. V. (2014). *Countering Terrorism in the Horn of Africa: A case study of Kenya. Nairobi,* [Unpublished Master Thesis] university of Nairobi. http://erepository.uonbi.ac.ke/bitstream/handle/11295/99276

General, S. (2015, December 24). Plan of Action to Prevent Violent Extremism. *United Nations General Assembly . Seventieth session, Agenda items 16 and 117*, pp. 1-22. United Nations.

Gikunda, B. K. (n.d.). *Terrorism in Kenya.* https://web.stanford.edu/class/e297a/Terrorism%20in%20Kenya.htm

Hacksaw., L. (2015). *Evaluating and Developing a Market-driven Value chain that provides High Quality Fresh Fish Products for the Local Market in Antigua and Barmuda.* http://www.unuftp.is/static/fellows/document/lar15prf.

Hecht, M. M., & Waldhart, G. (2011, September). *Fostering adoption, acceptance, and assimilation in knowledge management system design. In Proceedings of the 11th International Conference on Knowledge Management and Knowledge Technolog*.

HoonHo Kim, D. L. (2013). *Literature Review Onthe Value-Added Measurement InhigherEducation.*https://www.oecd.org/education/skills-beyondschool/Litterature%20Review%20VAM.pdf: school/Litterature%20Review%20VAM.pdf

IBF. (2011). *Support to legislative development in Tanzania and Preparation of a draft Aquaculture policy in Kenya. Final Technical report. (Technical Report No.3; Environment Waikato Internal Series 2004/01).* https://www.oecd.org/education/skills-beyond-

Institute, P. M. (1996). *A Guide to the Project Management Body of Knowledge.* http://www2.fiit.stuba.sk/~bielik/courses/msi-slov/reporty/pmbok.pdf

Institute, P. M. (2008). *Guide to Project Management Body of Knowledge.*

International, C. A. (2018). *Creative Associates International*. https://www.creativeassociatesinternational.com/cve-and-pve/

Irene Tulel & David Maina. (2017). *Strenthening Community Resilience against Radicalisation and Violent Extremism.* United Nations Development Program. http://www.ke.undp.org/content/dam/kenya/docs/Peace%20Building/CVE%20 Japan_Final_Report_Project%2300098877.pdf

James Khalil & Martine Zeuthen. (2014). A Case Study of Counter Violent Extremism (CVE) Programming: Lessons from OTI's Kenya Transition Initiative. *International Journal of Security & Development, 1*-12. doi:10.5334/sta.ee

Japp, D. (2011). *Kenya Fisheries Governance. Implementation for Regional Fisheries Strategy Report for the Eastern-Southern Africa and Indian Ocean Region.* http://commissionoceanindien.org/fileadmin/projets/smartfish/Rapport/KENY FISHERIES_G.

John, T. (2018). B*oko Haram Has Kidnapped Dozens of Schoolgirls, Again. Here's What to Know. Nigeria*. http://time.com/5175464/boko-haram-kidnap-dapchi-schoolgirls/

Josan, I. J. (2013). Human capital and organizational effectiveness. *Manager,* (17), 39-45. https://www.proquest.com/docview/1518528946

Julian Brett & Andre Kahlmeyer. (2017). *Strenthening Resilience to Violent Extremism - STRIVE (Horn of Africa).* European Union. http://ct-morse.eu/wp-content/uploads/2017/04/170124-STRIVE-evaluation-Report-Final.pdf

Kariuki, A. N., Iravo, M. A., & Kihoro, J. M. (2015). Value addition and performance of informal dairy enterprises in Kenya: A product diversification perspective. IOSR *Journal of Business and Management, 17*(9), 2319-7668. www.iosrjournals.org

Kerzner, H. (2009). *Project Management; A Syatems Approach to Planning, Scheduling and Controlling.* John Wiley & Sons Inc.

Kerzner, H. (2017). *Project management: A system approach to planning, scheduling, and controlling.*

Kim, H., & Lalancette, D. (2013). *Literature review on the value-added measurement in higher education. Ahelo Feasibility Study. https://www.oecd.org/education/skills-beyond-school/Litterature%20Review%20VAM.pdf*.

Kizito, P., Kimani., E., & Lodiaga., M. (2017). Ventures within Fisheries Value Chain that Men and Women Participate in Nairobi City County, Kenya. *Advances in Social Sciences Research Journal, 4*(8), 37 – 38. DoI:10.14738/assrj.48.3022.

Koskela, L J & Howell, G. (2002). *The underlying theory of project* . Manchester: University of Stanford .

Kumar, A. (2010). Milk marketing chains in Bihar: Implications for dairy farmers and traders. *Agricultural Economics research review, 23*(347-2016-16945), 469-478.www.dairyknowledge.in/.../milk_marketing_chains_in_bihar_implications _for_dai.

Kumar, B. G., Datta, K. K., Joshi, P. K., Katiha, P. K., Suresh, R., Ravisankar, T. .., & Menon, M. (2008). *Domestic fish marketing in India–changing structure, conduct, performance and policies.* www.academia.edu/.../Domestic_fish_marketin.

Kwon, D. B. (2009). *Human capital and its measurement. In The 3rd OECD World Forum on "Statistics, Knowledge and Policy" Charting Progress, Building Visions, Improving Life (pp. 27-30)* . DOI:10.13140/2.1.4310.6887

Kyule, D. N., Yongo, E., Opiyo, M. A., Obiero, K., Munguti, J. M., & Charo-Karisa, H. (2014). *Fish product development and market trials of fish and fish products in Kenya: a case study of Kirinyaga and Meru Counties. Livestock Research for Rural Developm.* http://www.lrrd.org/lrrd26/6/kyul26108.htm

Lech, P. (2013). Time, Budget, and Fuctionality? IT Projects Success Criteria Revised. *Information Systems Management*, 263-275. DOI:10.1080/10580530.2013.

Lliyasu, A. H., Onu, J. I., Midau, A., & Fintan, J. S. (2011). Economics of smoked and dried fish marketing in Yola North and South local Government areas of Adamawa State, Nigeria. *Journal of Agriculture. Social Science, 7*, 13-16. https://agris.fao.org/agris-search/search.do?recordID=PK2011000858

Ludovic Alexander Vidal & Franck Marle. (2008). *Understanding Project Complexity: Implications on Project Management* . Kybernetes Emerald.

Lum, Cynthia, Kennedy Leslie W. & Sherley, Alison J. (2006). *The Effectiveness of Counter-Terrorism Strategies.* The Campbell Collaboration. doi:10.4073/csr.2006.2

Lutchman, C. (2016). *Project Execution: A practical Approach to Industrial and Commercial Project Management* . CRC Press.

Macheridis, Nikos & Nilsson, Carl-Henric. (2013). *Managing Project Complexity : a managerial view.* Lund University. https://www.researchgate.net/publication/247112248_Managing_Project_Complexity_-_a_managerial_view

Madrid, C. d. (2017). *Preventing Violent Extremism in Nigeria: Effective Narratives and Messaging.* Club de Madrid. http://www.clubmadrid.org/wp-content/uploads/2017/10/2.-Nigeria_Report.pdf

Mamo, T., Tefera, T., & Byre, N. (2014). *Factors influencing urban and peri-urban dairy producer's participation in milk value addition and volume of milk value added in Welmera Woreda, West Shewa Zone of Oromia Regional State, and Ethiopia. International.* DOI:10.5897/IJLP2013.0174

Marr, B. (2015). *Key Performance Indicators.* Chichester  John Wiley & sons, Ltd. .

Masood, A & Mini, J. (2009). *Complexity in projects : a study of practioners' understanding of complexity in relation to existing theoretical models.* https://www.diva-portal.org/smash/get/diva2:158819/FULLTEXT01.pdf

Mehdi, S. (2011). The effects of human capital on agricultural sector: The case of Iran *European Journal of Experimental Biology, 1* (4), 55-6 5 . www.pelagiaresearchlibrary.com.

Miller, S. E. (2003). *After the 9/11 Disaster: Washington's Struggle to Improve HomelandSecurity.*https://www.belfercenter.org/publication/after-911-disaster-washingtons-struggle-improve-homeland-security

Mohamad, R., Ahmad, M. F., Abidin, A., & Mohamad, R. (2011). Consumers acceptance and purchase intent of fresh water fish products developed by MARDI, *Economic and Technology Management Review, 6*, 77-82. DOI: 10.15590/ajase/

*Mombasa County Government.* (2018 ). *Mombasa County  Countering Violent Extremism (CVE) Mapping Report* http://www.mombasa.go.ke/wp-content/uploads/2018/10/FINAL-REVISED-MAPPING-REPORT.pdf

Mombasa County Government, Mombasa County Commissioner's office & HAKI Africa. (2017). *Mombasa County Action Plan for Preventing and Countering Violent Extremism.*

Mombasa County Government, (2016). *Integrated Strategic Urban Development Plan, Mombasa Vision 2035.* https://www.scribd.com/document/365662403.

Morrisey, M. (2011). *Development of Value-Added Products in Aquaculture.*

Mugenda, A., & Mugenda, O. (2003). *Quantitative Analysis* (2nd ed.). Kenya Press.

Mugenda, A., & Mugenda, O. (2003). *Research methods; qualitative and quantitative approaches.* African Center for Technology Studies, (ACTS).

Mugenda, O., & Mugenda, A. (2006). *Research Methods. Quantitative and Qualitative Approaches.* African Center for Technology Studies, (ACTS).

Muthee, A. M. (2008). *MSME Competitiveness Project Ministry of Trade and Industry: Integrated Value Chain Analysis of Leather Sector in Kenya. http://www.industrialization.go.ke/images/downloads/kenya-leather-industry-diagnosis-strategy-and-action-plan.pdf*

Mwirigi, F. M., & Theuri, F. S. (2012). The challenge of value addition in the seafood value chain along the Kenyan north coast. *International Journal of Business and Public Management, 2*(2), 51-56. http://hdl.handle.net/1834/8873.

Nang'ole, E. M., & Franzel, S. (2011). *Review of guidelines and manuals for value chain analysis for agricultural and forest products. Nairobi, Kenya: World Agroforestry Centre.* http://www.worldagroforestry.org/downloads/.

Nassiuma, K. (2008). *Survey sampling: Theory and methods.* university of Nairobi press.

National Counter Terrorism Center. (2016). *National Strategy For Countering Violent Extremism.*

Ntale J.F., L. K., & Mphande O. M. (2014). Indicators of Value Added Agri- Businesses on Small Farms in Kenya: An Empirical Study of Kiambu and Murang'a. County. *Journal of Small Business and Entrepreneurship Development, 2,* (3 & 4), 89-101. http://dx.doi.org/10.15640/jsbed.v2n3-4a6.

Ntale, & Litondo. (2013). Determinants of Commercial Mixed Farming on Small Farms in Kenya. *European Journal of Business and Management, 5*(22), 47-54. http://erepository.uonbi.ac.ke/handle/11295/81284

Odoyo. (2013). Impact of Access to Agro-processing Technologies on Growth of Smallholder Agro-processing Industry in Bureti District, Kenya [Unpublished master's thesis] university of Nairobi, Kenya. http://erepository.uonbi.ac.ke/bitstream/handle/11295/71.

Ogola, J. (2018). *Mapping Report of Preventing and Countering Violent Extremism Actors in Mombasa County.* HAKI Africa.

Ogola, P. M., & Wanjau. (2013). Factors affecting value addition in the leather industry in Kenya. *European Centre for Research Training and Development UK, 1*(3), 45-55. https://www.eajournals.org/journals/

Ohge, L. (2004). *Leather Tanning and Finishing and Worker.* Chronicle Guidance .

Olorunfemi, O. O., Adekunle, F., Oladipo, T., Oladele, & Oladele., O. (2017). Training needs of fish farmers on value addition initiatives in Kwara State, Nigeria. *Sarhad Journal of Agriculture, 33*(1), 14-21.

Patrick, M & Mutuma, R. (2017). *Addressing and Mitigating Violence: Where is the Money ? Donor Funding for Conflict and Violence Prevention in Eastern Africa. Institute of Development Studies/Centre for Human Rights and Policy Studies.* https://www.chrips.or.ke/publications/research-reports/addressing-and-mitigating-violence/

Prasanna, R & Timmanagoudar. (2014). Study on Government Policies and Regulation Factors which are affecting the Performance of SME's .*Journal of Business and Management, 16*(7) 23-28. http://www.iosrjournals.org/iosr-jbm/papers/Vol16-issue7/Version-2/D016722328.pdf.

Prevention of Terrorism Act - Kenya . (2012). *Laws of Kenya.* http://www.kenyalaw.org/lex/actviewbyid.xql?id=KE/LEG/EN/AR/P/NO.%20 30%20OF%202012#KE/LEG/EN/AR/P/NO.%2030%20OF%202012

Project Management Blog. (2019). *Types of Project Reports / Sinnaps - Project Management Tool.* https://www.sinnaps.com/en/project-management-blog/types-of-project

PSCU. (2018). *Capital News.* https://www.capitalfm.co.ke/news/2018/01/kenya-instituted-measures-fight-terror-president-kenyatta-says/

Rašula, J., Vukšić, V. B., & Štemberger, M. I. (2012). The impact of knowledge management on organisational performance. Economic & Business Review, 14(2),147-168. https://pdfs.semanticscholar.org/8310/4e499b8234d99a29531df29b6aff9320e664.pdf.

Ray, S. (2018). *Project manager.* https://www.projectmanager.com/blog/project-design-in-project-management

Remington K.; Zolin R. & Turner R. (2009). A model of project complexity: Distinguishing dirmensions of complexity from severity. *9th International Research Network of Project Management Conference.* IRNOP.

Republic of Kenya (2012). *Annual Report 2012, Ministry of Livestock and Fisheries.* Government printer

Republic of Kenya. (2013). *Fisheries Monitoring, Control and Surveillance Capacity Needs Assessment Report for the Marine and Coastal Fisheries in Kenya Ministry of Fisheries Development? government printer.*

Republic of Kenya. (2008). *Annual Report 2008, Ministry of Livestock and Fisheries Development, Fisheries Department. Kenya: government printer.*

Richardson, G. L. (2010). *Project Management Theory and Pratice.* Boca Raton, FL: CRC Press.

Salagrama. (2015). *Fisheries Value Chain Assessment Opportunities for strengthening the position of the small scale fishers in the value chain".*

Scofields Associates Limited. (n.d.). *Community Led Security Approaches to Violent Extremism in Coastal Kenya (Kilifi, Kwale,Lamu, Mombasa).* Search for commonground.http://www.scofieldassociates.co.ke/docs/SFCG%20Baseline%20Summary%20report.pdf

Sekaran, U. (2010). *Research methods for business: A skill building approach. (5th Ed.)* John Willey & Sons' publisher.

Severine, D., & Lila, S. (2009). *An Introduction to the Human Development and Capability Approach, Freedom and Agency.* Earth Scan publishers.

Statista. (2018). *Terrorism in Europe - Statistics & Facts | Statista* https://www.statista.com/topics/3788/terrorism-in-europe/

Striegheris, J.-L. (2015). *Violent-extremism: An examination of a definitional dilemma. The Proceedings of [the] 8th Australian Security and Intelligence Conference (pp. 75-86).* Edith Cowan University. http://ro.ecu.edu.au/cgi/viewcontent.cgi?article=1046&context=asi

Sunday Standard Team. (2019, February 10). Radicalisation: Where it all began. *Standard Digital.* Nairobi. https://www.standardmedia.co.ke/article/2001312572/radicalisation-the-hardcore-clerics-kenya-cannot-wait-to-forget

Swanson, R. A., & Holton, I. (2001). *Foundations of Human Resource Development.* Koehler Publishers, Inc.

Tea Board of, k. (2014). *.Feasibility Study o Establishment of Tea Value Addition Facilities in Kenya.* M.A Consulting Group.

Terrorism, N. C. (n.d.). *Global Terrorism Database website.* http://www.start.umd.edu/gtd/search/IncidentSummary.aspx?gtdid=200109110 004

The United Nations Global Counter-Terrorism Strategy. (2006). *Resolution adopted by the General Assembly on 8 September 2006.* United Nations General Assembly.

Thomas, W. H., & Feldman, D. C. (2009). *How Broadly Does Education Contribute to Job Performance? Personnel Psychology, 62, 89- 134. https://homepages.se.edu/.../How-Broadly-Does-Education-Contribute-to-Job-Perform.*

Toms, S. (2010). Value, profit and risk: accounting and the resource-based view of the firm. *Accounting, Auditing & Accountability Journal, 23*(5), 647-670. https://www.emeraldinsight.com/doi/abs/10.1108/09513571011054927.

Toor, S.R. & Ogunlana,S.O. (2009). Beyond the 'iron triangle': Stakeholder perception of key performance indicators (KPIs) for large-scale public sector development projects. *International Journal of Project Management*, 228-236. DOI:10.1016/j.ijproman.2009.05.005

Trofimovich, P., & McDonough, K. (2013). *Priming in P. Robinson (Ed.), The Routledge Encyclopaedia of Second Language Acquisition (pp.505-508).* Routledge.

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United Nations Development Programme. (n.d.). *Support to the Prevention of Violent Extremism In Kenya.* Nairobi: United Nations Development Programme Kenya. http://www.ke.undp.org/content/kenya/en/home/search.html?q=violent+extrem ism

Van den Berg, M., Boomsma, L., Janssen, N., Moustier, T., Smith, D., & van Wijk, S. (2009). *Making value chains work better for the poor: a tool book for practitioners of value chain analysis.* http://www.markets4poor.

Vleems, M. (2018). *Measuring Project Perfromance: A Method of Project comparison.* Open University of the Netherlands.

Watts, G., Cope, J., & Hulme, M. (2008). Ansoff's Matrix, Pain and Gain. *International Journal of Entrepreneurship Behaviour and Research, 4*(2), 101-111. ttps://www.emeraldinsight.com/doi/abs/10.1108/13552559810224567?fullSc= 1.

Westland, J. (2007). *The Project Management Life Cycle.* (R. M. Wideman, Ed.) http://www.maxwideman.com/papers/life_cycle/life_cycle.pdf

Whitmire, B. (2014). *Increasing Competitive Advantage using Technology.* http://pinnacleofindiana.com/blog/blog/2014/01/21/increase-your- competitive advantage- using-technology/.

Zeiger, S & Aly, A. (2015). *Countering Violent Extremism: Developing an Evidence Base for Policy and Practice.* Hedayah and Curtin University. http://www.hedayahcenter.org/Admin/Content/File-23201691817.pdf

Zeiger, S. (2016). *Expanding Research on CVE.* Hedaya and Edith Cowan University.

Zubovic´, Domazet, & Stoŝic´. (2009). December). Development of Human Capital as a tool for Improving Productivity of Agricultural Sector-Case of Serbia. Paper prepared for presentation at the 113 th EAAE Seminar The Role of Knowledge, Innovation and creativity. https://www.researchgate.net/publication/46472583_

Zwikael. (2009). The Relative Importance of the PMBOK®Guide's Nine KnowledgeAreas during Project Planning. *Project Management Journal*, 94-103. DOI:10.1002/pmj.20116

# APPENDICES

**Appendix I: Map of Mombasa County.**
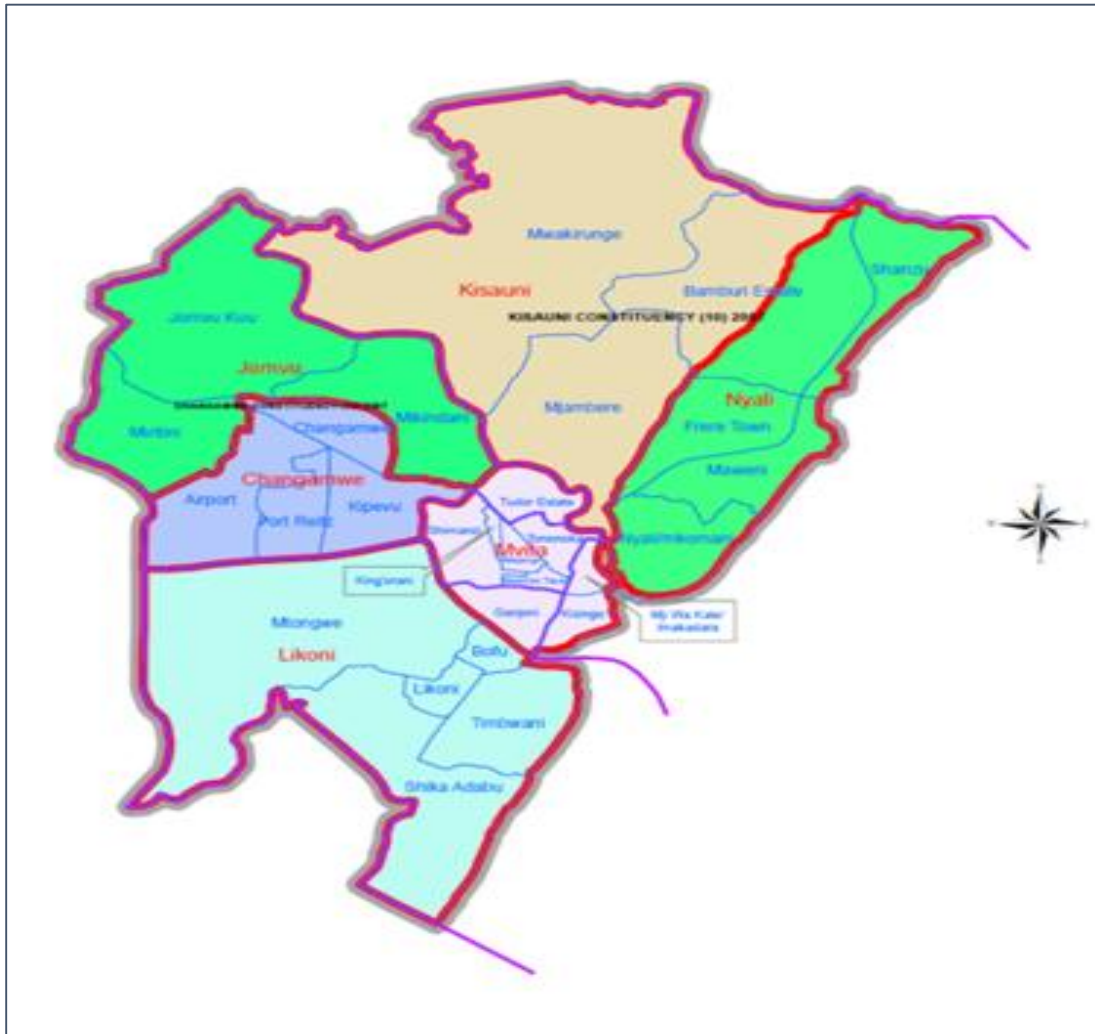
**Appendix II: Cover Letter for Research Questionnaire**


Swaleh Mahmud Sheikh
MBA Student
KEMU Mombasa Campus

Dear Respondent,

**RE: ASSISTANCE IN COLLECTION OF DATA FOR MBA RESEARCH THESIS**

I am an MBA student at KEMU seeking your assistance and indulgence in a study entitled ***"Factors influencing fish value addition among fish traders in Mombasa County"***. This research thesis is a requirement by the University for the Award of an MBA in Strategic Management of Kenya Methodist University.

I kindly request you to take time and answer this questionnaire to the best of your ability.

The answers you will provide will be treated with confidentiality and your details will be kept anonymous as part of ethical requirement.

Please take note that the information obtained will be singularly used for this study and for academic purposes only.

Yours faithfully,


Swaleh Mahmud Sheikh

Contacts:
Email address: swaleh_mahmud@yahoo.com
Cell phone No. 0722211385

**Appendix III: Research Questionnaire**

Factors influencing fish value addition among fish traders in Mombasa County

Information supplied on this form is treated as confidential and restricted to the research study only

**SECTION A: BACKGROUND INFORMATION**

Organization Name…………….................................................................................................
Sub County……………….........................................................................................................
Interview date……………..................................................................................................
Interviewer's Name/ Number……………………………………………………………

**(Please tick as appropriate)**

**SECTION B: BASIC INFORMATION**

1.      Gender

   Male []    Female [  ]

2.  Age

   [  ] =Under 25,   [  ] =25-35,   [  ] =36-45,       [  ] =46-55      [ ] =above 55

3.  Level of Education

   No formal education              [  ]
   Some class in primary            [  ]
   Completed primary                [  ]
   Some class in secondary          [  ]
   Completed secondary              [  ]
   College education                [  ]
   University education             [  ]

4. Number of years in the fisheries business?

Less than 1 year    [ ]          2-5 years        [ ]

6- 10 years          [ ]          Over 10 years  [ ]


## SECTION B: VALUE ADDITION (PRODUCTION) INFORMATION

5.      Which of the fisheries businesses are you involved in?

Fish production / harvesting    [ ]
Trading /sales                          [ ]
Processing and sales               [ ]
Sales                                        [ ]

6.      If fish production, which of the following best describes the land where you are doing business?

Self – owned                          [ ]
Family land                           [ ]
Community land                    [ ]
Rented/leased                        [ ]
Vacant private plot                [ ]
Roadside/railway reserve       [ ]
Open public land                   [ ]
Others                                   [ ]

(If others, specify) ……………………………………………………………………

7.      What is the approximate total size of the land where you do fisheries business?

Above    2 acres                   [ ]
1-2 Acres                             [ ]
0.76 - 1    (1 acre)              [ ]
0.51- 0.75 (3/4 acre)          [ ]
0.26 - 0.5 (1/2 acre)           [ ]
0 - 0.25    (¼ acre)             [ ]

8.    Out of the total land what is the size of land under fish value addition?

Above 2 acres                    [  ]
1-2 Acres                        [  ]
0.76 - 1   (1 acre)              [  ]
0.51- 0.75 (3/4 acre)            [  ]
0.26 - 0.5 (1/2 acre)            [  ]
0 - 0.25 (¼ acre)                [  ]


9.    What is the main types of fish do you trade in? [  ][  ][  ][  ][  ][  ]

Codes: 1 = tuna 2 = lobster 3 = shrimp 4 = octopus 5 = tilapia 6 = Nile perch

7=catfish 8= shark 9= mud fish 10= sardines 11= other

(If other, specify) ……………………………………………………………


10.    Which is the main source of fish traded?

Fish markets within the county               [  ]
Fish Markets outside the county              [  ]
Fishermen directly                           [  ]
Import                                       [  ]
Both within and outside the county           [  ]
Both outside the county and fishermen directly  [  ]
Both within the county and fishermen directly   [  ]
Others (specify) …………………………………………………………………

11.    How many tones do you produce/trade weekly?
0-10                     [  ]
11-30                    [  ]
31-45                    [  ]
46-60                    [  ]
61-75                    [  ]
76-90                    [  ]
Above 90                 [  ]

12.  Who is your major type of customers?

Households   [ ]        Institutions   [ ]   Export   [ ]

Both Households and Institution      [ ]      Both Households and Export    [ ]

Households, Institution and Export   [ ]

(If other, specify) ……………………………………………………

13.  In what form do you buy your fish   [ ][ ][ ][ ]

Codes: 0 = fresh 1 = semi-processed 2 = fully processed,

(If fully processed, specify) …………………………………………………

14.  What forms of value addition do you engage in?  [ ][ ][ ][ ]

Codes: 0 = none 1 = drying 2 = frying 3 = mincing 4 = freezing 5 = salting
6=smoking 7= canning 8= other

(If other, specify) **………………………………………………………**

15. What motivated you to choose the form of value addition?

Generate more income                         [  ]
Prolong the shelf life                        [  ]
Serve a diversified market clientele          [  ]
To ensure consistency in supply              [  ]
To be more competitive in the marketplace    [  ]
To make other products which are in high demand   [  ]
Because I am trained in value addition        [  ]
Avoid wastage                                 [  ]
To be able to break into high end markets     [  ]
Other                                         [  ]

(If other, specify) …………………………………………………………

16. If the respondent does not add value to any of his/her fish products, indicate his/her reasons

| Reason(s) | Tick | Reason(s) | Tick |
|---|---|---|---|
| Difficulty to access market. | | Lack of human capital development | |
| Lack of established structures | | Lack of innovation. | |
| Lack of power supply | | Stringent licensing requirements | |
| Lack of preservation equipment | | Lack of policy framework | |
| Lack of market | | Inadequate regulatory framework | |
| Lack of sewage system | | Lack of an enabling environment | |
| Lack of piped water | | Inadequate entrepreneurship skills | |
| Low literacy level | | Lack of training on health and safety aspects | |
| Inadequate training on health and safety aspects | | | |

17. Have you ever received any training on fish handling and safety?

Yes [  ]                No    [  ]

18. What challenges do you encounter in fish value addition?
Lack of technical know-how          [  ]
Irregular power supply               [  ]
Lack/irregular water supply          [  ]
Lack of skilled manpower             [  ]
Lack of equipment                    [  ]
Poor road networks                   [  ]
Lack of processing facilities        [  ]
Lack of Government support           [  ]
Other                                [  ]
(If other, specify) ………………………………………………………………

## SECTION C: TECHNOLOGIES

19. What is your main source of water for value addition?

      Piped water                        [ ]

      Rain water                        [ ]

      Borehole/shallow well       [ ]

      Water pan/pond               [ ]

      Stream/river                     [ ]

      Industrial waste water      [ ]

      Others                           [ ]

      (If others, specify) …………………………………………………………….

20.     What technologies do you practice to harvest water

      None                            [ ]

      Roof catchment               [ ]

      Dams/water pans/ponds      [ ]

      Desalination                  [ ]

      Others                           [ ]

      (If others, specify) …………………………………………………………….

21.    Indicate the functional types of processing equipment used in your fish processing Business or unit: *(tick the applicable ones – more than one may apply)*

| Equipment | Tick | Equipment | Tick |
|---|---|---|---|
| i)Deep freezer | | vii) Sorting Equipment | |
| ii)Fridge | | viii) Packaging equipment | |
| iii) Cooking equipment | | ix) Non thermal preservation | |
| iv) Thermal preservation equipment | | x) None | |
| v) Filleting tools | | xi) Others (specify) | |
| vi) Mincer | | xii) Solar drier | |

# SECTION D: FACTORS INFLUENCING FISH VALUE ADDITION

**22. Does the following factors influence fish value addition?**

**5 = Strongly Agree, 4 = Agree, 3= Indifferent/Neutral, 2 = Disagree, 1 = Strongly Disagree**
**Please, tick the extent to which the following factors influences fish value addition**

| Infrastructure Influence on Value Addition Processes | 5 | 4 | 3 | 2 | 1 |
|---|---|---|---|---|---|
| **Q**.1 Access to market. | | | | | |
| **Q**.2. Availability of established structures. | | | | | |
| **Q**.3. Availability of power supply. | | | | | |
| **Q**.4. Availability of preservation equipment. | | | | | |
| **Q**.5. Availability of market. | | | | | |
| **Q**.6. Availability of waste disposal system. | | | | | |
| **Q**.7. Availability of piped water. | | | | | |
| **Human Capital Influence on Value Addition Processes** | | | | | |
| **Q**.1. Entrepreneurship skills. | | | | | |
| **Q**.2. Human capital development. | | | | | |
| **Q**.3. Innovation. | | | | | |
| **Government Policy Influence on Value Addition** | | | | | |
| **Q**.1. Licensing requirements. | | | | | |
| **Q**.2. Policy framework. | | | | | |
| **Q**.3. Regulatory framework. | | | | | |
| **Q**.4. Enabling environment. | | | | | |
| **Training Influence on Value Addition** | | | | | |
| **Q**.1. Literacy level. | | | | | |
| **Q**.2.Training on health and safety aspects. | | | | | |
| **Value Addition** | | | | | |
| **Q**.1. Prolonged shelf life | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| **Q.2.** increased product ranges | | | | | |
| **Q.3.** increased availability | | | | | |
| **Q4. Increased convenience** | | | | | |

## Appendix IV: List of Fish Traders

## LARGE FISH TRADERS

| NO. | NAME OF BUSINESS | COUNTY |
|-----|------------------|--------|
| 1. | SEA HARVEST (K) LTD | MOMBASA |
| 2. | TRANSAFRICA FISHERIES LTD | MOMBASA |
| 3. | CRUSTACEAN PROCESSORS | MOMBASA |
| 4. | DIAMOND SEAFOOD (K) LTD | MOMBASA |
| 5. | BRINKLEY LTD | MOMBASA |
| 6. | ARAFATI RUHUSA | MOMBASA |
| 7. | CHONGCHAO ENTERPRISES | MOMBASA |
| 8. | YUSRA FISH TRADING CO. LTD | MOMBASA |

*Source: FIQA 2018 Annual Report for Mombasa National Fisheries Office*

## SMALL FISH TRADERS

| No. | FISH SHOP | COUNTY |
|-----|-----------|--------|
| 1. | FRIENDS FISH SHOP | MOMBASA |
| 2. | KHADIJA FISH SHOP | MOMBASA |
| 3. | AL-MALIQ FISH SHOP | MOMBASA |
| 4. | ROAD STAR FISH SHOP | MOMBASA |
| 5. | MIFTAH FISH MONGER | MOMBASA |
| 6. | OCEAN FISH SHOP | MOMBASA |
| 7. | FISH SHOP | MOMBASA |
| 8. | BARACUDA FISH SHOP | MOMBASA |
| 9. | AHAMED FISH SHOP | MOMBASA |
| 10. | THE BIG FISH SHOP | MOMBASA |
| 11. | BAZO FISH POINT | MOMBASA |
| 12. | KISIWANI FISH SHOP | MOMBASA |
| 13. | FROM GLORY TO GLORY FISH SHOP | MOMBASA |
| 14. | AMITO FISH SHOP | MOMBASA |
| 15. | SAMISAA FISH SHOP | MOMBASA |
| 16. | MWATATE FISH SHOP | MOMBASA |
| 17. | FRIENDS FISH SHOP | MOMBASA |
| 18. | ASAKHEIR FISH SHOP | MOMBASA |
| 19. | HALWA FISH SHOP. | MOMBASA |
| 20. | ESTATE FISH SHOP. | MOMBASA |
| 21. | NDOANO FISH SHOP. | MOMBASA |
| 22. | TENEVI FISH SHOP | MOMBASA |
| 23. | MASHALLAH FISH & JUICE SHOP | MOMBASA |
| 24. | SMART MINDS GENERATION FISH SHOP | MOMBASA |
| 25. | BOMBOLULU FISH SHOP. | MOMBASA |
| 26. | BLUEFIN FISH SHOP | MOMBASA |
| 27. | SHEBE FISH1 | MOMBASA |
| 28. | SEGA FISH SHOP | MOMBASA |

| 30. | DICODO FISH BUTCHERY | MOMBASA |
|-----|---------------------|---------|
| 31. | YOLO FISH SHOP | MOMBASA |
| 32. | LAMU FISH | MOMBASA |
| 33. | FISH SHOP1 | MOMBASA |
| 34. | DEE FISH SHOP | MOMBASA |
| 35. | QAMAR FISH SHOP | MOMBASA |
| 36. | AWADH FISH SHOP | MOMBASA |
| 37. | GEMS FISH | MOMBASA |
| 38. | JUNDA FISH SHOP | MOMBASA |
| 39. | UBWETE BUTCHERY AND FISH SHOP | MOMBASA |
| 40. | MAMA JUNIOR FISH SHOP | MOMBASA |
| 41. | AISHA FISH SHOP | MOMBASA |
| 42. | BAZGARO FISH SHOP | MOMBASA |
| 43. | RAHMA FISH AND GROCERY | MOMBASA |
| 44. | ZAI FISH SHOP | MOMBASA |
| 45. | PREMIER WORLD BUTCHERY AND FISH CENTRE | MOMBASA |
| 46. | JODARI 1 FISH SHOP | MOMBASA |
| 47. | BIN - ABDULMAJID FISH SHOP | MOMBASA |
| 48. | ZUWENA FISH SHOP | MOMBASA |
| 49. | KELONA  FISH SHOP | MOMBASA |
| 50. | VANGA FRESH FISH | MOMBASA |
| 51. | WAKAKA FISH SHOP | MOMBASA |
| 52. | QAMAR FISH   SHOP | MOMBASA |
| 53. | BUTE FISH SHOP | MOMBASA |
| 54. | MIGINGO FISH DEPOT | MOMBASA |
| 55. | KIBIBI FISH SHOP | MOMBASA |
| 56. | BAHARI   FISH  SHOP | MOMBASA |
| 57. | J. M. FISH SHOP | MOMBASA |
| 58. | BABU FISH SHOP | MOMBASA |
| 59. | FATTIES  FISHPOINT | MOMBASA |
| 60. | UTAMU FISH SHOP | MOMBASA |
| 61. | FINE FISH | MOMBASA |
| 62. | M.O FISH PRODUCTS | MOMBASA |
| 63. | AMIT FISH SHOP | MOMBASA |
| 64. | SHALOM FISH SHOP | MOMBASA |
| 65. | ASWAN FISH  SHOP | MOMBASA |
| 66. | KARIBU FRESH FISH SUPPLY | MOMBASA |
| 67. | VICTOLAPIA FISH SHOP | MOMBASA |
| 68. | NGARE FISH SHOP | MOMBASA |

*Source: Department of Trade, Tourism and Investment Licensing Report 2018, Mombasa County*

# Appendix V: KEMU Introduction Letter

**KENYA METHODIST UNIVERSITY**

Department of Postgraduate Studies, Mombasa Campus

13th August 2019

## TO WHOM IT MAY CONCERN

**REF: SHEIKH SWALEH MAHMUD - BUS-3-7144-1/2014**

This is to confirm that the above named person is a bona fide student of this University pursuing a **Master of Business Administration** as part of the degree requirements the student is required to undertake research and write a thesis in the area of specialization.

The student is undertaking research on "**Factors influencing value addition among fish traders in Mombasa County** "and is currently proceeding to collect field data.

Any assistance given towards attaining this goal will be highly appreciated.

Yours faithfully

Eric Mathuva
**For Coordinator, Postgraduate Studies**

## Appendix VI: NACOSTI Research License



REPUBLIC OF KENYA

NATIONAL COMMISSION FOR
SCIENCE, TECHNOLOGY & INNOVATION

Ref No: 264230

Date of Issue: 09/September/2019

### RESEARCH LICENSE

This is to Certify that Mr.. SWALEH SHEIKH of Kenya Methodist University, has been licensed to conduct research in Mombasa on the topic: FACTORS INFLUENCING VALUE ADDITION AMONG FISH TRADERS IN MOMBASA COUNTY for the period ending : 09/September/2020.

License No: NACOSTI/P/19/1099

264230

Applicant Identification Number

Director General
NATIONAL COMMISSION FOR
SCIENCE, TECHNOLOGY &
INNOVATION

Verification QR Code

NOTE: This is a computer generated License. To verify the authenticity of this document,
Scan the QR Code using QR scanner application.

# Appendix VII: DALFC Research Authorization Letters

Ref. No.PF/1987061524/11

Swaleh Mahmud Sheikh
P.O. Box 90423 – 80100
MOMBASA

21st August, 2019

County Secretary
MOMBASA COUNTY

Thro'

Chief Officer
Department of Fisheries
MOMBASA COUNTY

Thro' **FORWARDED**

County Director for Fisheries
MOMBASA COUNTY  2 2 AUG 2019

SIGN:...........

Dear Sir, COUNTY DIRECTOR OF FISHERIES
MOMBASA

## REF: REQUEST FOR AUTHORIZATION TO COLLECT DATA FOR MBA (STRATEGIC MANAGEMENT OPTION) THESIS

I hereby write seeking authorization letter as indicated in the reference above.

I am an employee of the County Government of Mombasa working for the Department of Agriculture, Livestock, Fisheries and Co-operatives, Fisheries sub-department.

As indicated, I am pursuing a Master's of Business Administration (Strategic Management Option) degree at KEMU University- Mombasa campus and have completed my course work and currently preparing for research data collection.

As part of the degree requirements, it is mandatory to undertake a research and write a thesis in my area of specialization. My chosen research topic is on *"Factors influencing value addition among fish traders in Mombasa County"*. Towards this endeavor, I submitted my research proposal to my study Centre and got an introduction letter allowing me to continue with data collection

Over and above fulfilling the requirements for graduation, the research will help the department to undertake a comprehensive stakeholder mapping of fish traders. It will also assist to evaluate fish value addition strategies within Mombasa County.

The research findings and recommendations will also come in handy to assist in planning and preparation of fisheries value addition strategies thereby reduce fish post-harvest loses in the County. It is expected that future researchers will also benefit from the repository of information gathered.

The ultimate benefits of the research to the fishing community and Mombasa County at large will include but not limited to: increased household incomes, improved food security, increased revenues and improved living standards.

The tentative period for this exercise will be **TWO WEEKS** and scheduled to begin from **26th August 2019**.

I look forward to your positive feedback.

Yours faithfully

**SWALEH MAHMUD SHEIKH**
**CHIEF LIVESTOCK PRODUCTION OFFICER**
P/NO. 1987061524

**COUNTY GOVERNMENT OF MOMBASA**
**DEPARTMENT OF AGRICULTURE, LIVESTOCK, FISHERIES AND COOPERATIVES**

Telephone: 041-315904/22554
Fax: 254 – 041 – 222554
When replying/telephoning quote
Ref. No.MSA/CTY/R & D/03/VOL . 1 / 94
All correspondence should be addressed to
The County Director of Fisheries

COUNTY DIRECTOR OF FISHERIES
P. O. BOX 90423 (80100)
MOMBASA

21ST AUGUST, 2019

## TO WHOM IT MAY CONCERN

RE: AUTHORIZATION LETTER TO COLLECT DATA BY Ms FILISTER FAITH, ID NO. 32879126

This is to confirm that Ms Filister Faith, a student from Masinde Muliro University, has been allowed to collect data on behalf of the Department of Agriculture, Livestock, Fisheries and Cooperatives, Fisheries Sub-department for a period of 1 week beginning on 21st – 28th August, 2019.

The data to be collected focuses on "*Fish Value Addition among fish traders in Mombasa County*".

Any assistance accorded to her will be highly appreciated.

Uzel Mzera
COUNTY CHIEF OFFICER
DEPARTMENT OF FISHERIES
MOMBASA

**COUNTY GOVERNMENT OF MOMBASA**
**DEPARTMENT OF AGRICULTURE, LIVESTOCK, FISHERIES AND COOPERATIVES**

Telephone: 041-315900/22554
Fax: 254 - 041 - 222554
When replying/telephoning quote
Ref. No. MSA/CTY/R & D/03/VOL . 1 / 95
All correspondence should be addressed to
The County Director of Fisheries

COUNTY DIRECTOR OF FISHERIES
P. O. BOX 90423 (80100)
MOMBASA

21ST AUGUST, 2019

TO WHOM IT MAY CONCERN

RE: AUTHORIZATION LETTER TO COLLECT DATA BY Ms STELLA KALAMA, ID NO. 32879126

This is to confirm that Ms Stella Kalama, a student from Kitale National Polytechnic, has been allowed to collect data on behalf of the Department of Agriculture, Livestock, Fisheries and Cooperatives, Fisheries Sub-department for a period of 1 week beginning on 21st – 28th August, 2019.

The data to be collected focuses on *"Fish Value Addition among fish traders in Mombasa County"*.

Any assistance accorded to her will be highly appreciated.

Uzel Mzera
COUNTY CHIEF OFFICER
DEPARTMENT OF FISHERIES
MOMBASA