

**EFFECT OF GOVERNMENT POLICIES ON PERFORMANCE OF THE  
FISHERIES SUB-SECTOR: A CASE OF SELECTED LANDING  
SITES IN KALANGALA DISTRICT**

**BY**

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**DECLARATION**

I **MUNNAWA ROGERS**, solemnly declare that the information presented in this dissertation has never been submitted for a degree in this or any other institution of higher learning. All the work here is original unless otherwise stated.

Signed .....

**MUNNAWA ROGERS**

Date.....

**APPROVAL**

I certify that this dissertation has been compiled under my supervision and that it is now ready for further examination.

Signed: .....

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**Supervisor**

Date: .....

## **DEDICATION**

This report is humbly dedicated to my dear mum, Sisters; Brothers and my Family at large whose overwhelming support and encouragement have enabled the production of this work, Glory be to God!

## **ACKNOWLEDGEMENTS**

I wish to express my appreciation and gratitude to several people without whom this study would not have been possible. Special thanks go to my supervisor Prof. Faustino L. Orach-Meza for his endless patience and tireless effort in supervising the production of this dissertation.

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## **LIST OF ACRONYMS**

<b>BMUs</b>	-	Beach Management Units
<b>GDP</b>	-	Gross Domestic Product
<b>LDCs</b>	-	Less Developed Countries
<b>LVEMP</b>	-	Lake Victoria Environmental Management Programme
<b>MAAIF</b>	-	Ministry of Agriculture, Animal Industry and Fisheries
<b>QA</b>	-	Quality Assurance
<b>TQM</b>	-	Total Quality Management

## **ABSTRACT**

The study was set to investigate the effect of government policies on performance of the fisheries sub sector; a case of selected Landing Sites of Mwena, Lutoboka and Kitobo in Kalangala District. Objectively the study concentrated on how enforcing the quality of fish yield standards, community involvement in fisheries management and sustainable management and development of fisheries affect performance of the fisheries sub sector in selected landing sites in Kalangala district.

The study used a target population of 308 from three (3) selected landing sites and a sample of 282 respondents was selected using Neumann's formula (2000), out of 282 questionnaires submitted, only 250 were returned to the researcher for analysis. A cross section research design was employed and both quantitative and qualitative approaches were used to analyse and interpret data. Data were also analyzed using descriptive statistics, Pearson Correlation, Coefficient and Analysis of Variance (ANOVA). Regression analysis resulted in adjusted R square of 0.798 or 79.8%. The hypothesis testing using multiple regression findings proved that there is a strong and positive relationship between government policies and performance of the fisheries sector in Mwena, Lutoboka and Kitobo landing sites in Kalangala district.

The study concluded that enforcing the quality of fish yield standards; community involvement in fisheries management and sustainable management and development of fisheries improves performance of the fisheries sector in selected landing sites of Mwena, Lutoboka and Kitobo landing sites in Kalangala district.

The study recommends that the government should intensify its efforts towards reprimanding any one accused of violating quality fish yield standards to deter others from doing the same. The government also needs to increase its funding towards the Beach Management Units by not only recruiting more members but also offering them more logistical support like motor cycles to ease their movement such that they can be able to monitor all the fishing activities on the landing sites. Furthermore, the government should make it mandatory for all fishermen to acquire fishing licenses which would also specify the maximum amount of fish businessmen are expected to catch from the lake in a given period of time.

## CHAPTER ONE

### INTRODUCTION

#### 1.1: Background to the Study

The fisheries sector plays an important role in the economic and social development of many Less Developed Countries (LDCs) (Aloo, 2006). Numerous studies all over the world have been conducted to demonstrate the role of government policies in the performance of the fisheries sector. For instance, in a study conducted in China (Hongzhou, 2015) observed that driven by rapidly rising demand for fishery products and supported by government policies, China's fishing industry has expanded dramatically over the past three decades. In a study conducted in Malaysia, Othman (2004) also observed that the government supported the fishing industry by formulating the New Agricultural Policy to enhance its productivity and market driven growth. Rahman and Ahmed (2002) also carried out a study in Bangladesh and observed that government policies facilitate the development of small-scale fisheries, strengthen extension–research linkage and improve infrastructure. In Canada, Williams *et al.*, (2006) observed that the Government of Canada launched the Fishing Industry Renewal Initiative which provided solutions to problems and challenges facing the fishing industry. Among others, the Initiative helped fishers to get higher and more stable incomes, and communities to have a more secure future.

In an African setting, Oluwemimo and Damilola (2013) conducted a study which revealed that the government of Nigeria adopted different policies like distribute fingerlings to small scale fish farmers and subsidizations which generally improved the performance of the sector. In a study conducted in Ghana, Mensah (2012) observed that unfavorable government policies and economic reforms in other sectors of the economy contributed negatively on the fishing industry.

In Kenya, Mwatsuma, Cherutich and Nyamu (2013) observed that lack of government



commitment and where commitment existed, policy implementation failures is the main challenge to commercial aquaculture. Similarly, Mwangi (2008) observed that in Kenya the government support towards aquaculture extension services was inadequate and mostly led to poor performance at all levels from pond preparation, stocking, harvesting to marketing.

In Eastern Africa, the fisheries sector is important because it is a major source of animal protein to the populations along the coast of the Indian Ocean, island states in the Indian Ocean and inland water bodies (Mwima, 2012). The fisheries sector also provides employment of fishers and other workers involved in the fishing industry related activities (i.e. fish traders, fish processors, net-making factories, boat builders and repairers, etc.). In Kenya, there are about 80,000 people working as fishers and fish farmers and about 2.3 million Kenyans are involved mainly in fish processing and trade. The contribution of fisheries to the country's Gross Domestic Product (GDP) is 0.5% (Kenya National Oceans and Fisheries Policy, 2008). In Tanzania, the fisheries sector employs about 4 million people engaged in fisheries and fisheries related activities while more than 400,000 registered fishers are directly employed in the sector; and the contribution of fisheries to the country's GDP is 1.4% (TFSDP, 2010). In Uganda, the fisheries sector employs about 700,000 Ugandans, and provides livelihood to more than 1.2 million people at different levels of the value chain, and nearly 40% of the unskilled indirect employment are women involved in support to the fishing activities. The contribution of fisheries to the country's GDP is 2.1% (MAAIF DSIP, 2011).

In Eastern Africa, fisheries management is vested in the central government ministry responsible for fisheries, with the Department of Fisheries as the competent authority, under the guidance of the national fisheries policies and the fisheries legislation (Mwima, 2012). The Department is mandated to promote, support, guide, regulate and control the fisheries resources; and is responsible for the formulation of Government policies in the fisheries sub-sector, the development of national plans and strategies to achieve set goals within the policy guidelines, and to monitor and supervise the performance of the district authorities (where applicable) and the private sector (Mwima, 2012). Recognizing the benefits of the fisheries sector and the existing potentials, the government of Uganda has shown its interest by formulating different policies and regulations governing fisheries resources including Uganda's Fish Act of 1964 which governed conservation, sale and processing of fish, Fish (Quality Assurance) rule of 1998 and the Fish (Immature Fish) Instrument of 2002 which covered fish inspection, approval of landing sites, processing plant quality control, vessel licensing, net size, and legal minimum fish size (Hammerle, *et al*, 2010 cited in Atukunda and Ahmed, 2012). In this study an analysis was made to establish whether the government policies defined in terms of enforcing quality of fish yield standards, community involvement in fisheries management and enforcement of sustainable management and development of the fishing sector have significant effect on performance of the fisheries sector with specific reference to selected landing sites in Kalangala District.

The government also developed the National Fisheries Policy in 2003 which sought to ensure sustainable exploitation of the fisheries resources at the highest possible levels, thereby maintaining fish availability for both present and future generations without undermining the environment (Atukunda and Ahmed, 2012). However, despite the existence of such policies, the sector's performance has not been impressive. This is evidenced in the National Agriculture Policy (2015) which revealed that the fisheries sector still faces several performance challenges including significant decline in fish stock, closure of some processing factories due to lack of fish to process, illegal fishing practices which adversely affected the quality of fish as well as non-compliance with regulations and destruction of breeding grounds, especially wetlands. This study therefore sought to examine whether the existing government policies have any significant effect on performance of the fisheries sector with specific reference to selected Landing Sites in Kalangala district whose performance was also reported to be deteriorating over the years reflected in terms of declining fish stocks, poor daily fish catches/landings and dormant fish landing facilities (Office of the Auditor General, 2014). The motivation for this study is because of the deteriorating performance of the fisheries sector despite existence of several government policies.

## **1.2: Statement of the Problem**

The importance of the fisheries sector in the socio-economic development of Uganda cannot be overemphasized. Moreover, fisheries and related activities from the production systems (natural aquatic habitats) to marketing (export trade at both international, regional and local) significantly contribute to Uganda's economic growth in terms of revenue and employment and currently plays a big role in Gross Domestic Product (GDP) of the country (Atukunda and Ahmed, 2012). It is as a result of these and many other benefits of the fisheries sector that the government of Uganda formulated a number of policies and regulations seeking to enhance its performance. Among others, the government formulated the National Fisheries Policy (2004) which provides for enforcement of quality fish standards by putting in place a functional quality assurance system involving employment of fish quality control officers who make regular inspection of fish processing plants to ensure that fishermen adhere to standard net size and legal minimum fish sizes. The policy also provides for community involvement in management of the fisheries sector by creating Beach Management Units (BMUs) at pre-existing fish landing sites that are responsible for enforcing the fishing rules established for the lakes, serve as data collection points for monitoring and increasing community members' capacity to manage their fishing businesses.

The policy further provides for enforcement of sustainable management and development of the fishing sector to ensure that there is conservation, protection, proper use, economic efficiency and equitable distribution of the fisheries resources both for the present and future generations through sustainable utilization. However, despite the existence of such policies, the sector's performance has not been impressive. This is evidenced in the National Agriculture Policy (2015) which revealed that the fisheries sector still faces several performance challenges

including significant decline in fish stock which led to closure of some processing factories due to lack of fish to process, illegal fishing practices which adversely affected the quality of fish as well as non-compliance with regulations and destruction of breeding grounds, especially wetlands. This study therefore sought to examine whether the existing government policies have any statistically significant effect on performance of the fisheries sub sector with specific reference to Kalangala Landing Site whose performance was also reported to be deteriorating over the years reflected in terms of declining fish stocks, poor daily fish catches/landings and dormant fish landing facilities (Office of the Auditor General, 2014).

### **1.3: Study Objectives**

This study was informed by both general and specific objective.

#### **1.3.1: General Objective**

The study was set to investigate the effect of government policies on performance of the fisheries sector in selected Landing Sites in Kalangala district.

#### **1.3.2: Specific Objectives**

The following specific objectives informed the study:

- i. To examine the effect of enforcing the quality of fish yield standards on performance of the fisheries sector in selected landing sites in Kalangala District.
- ii. To establish the effect of community involvement in fisheries management on performance of the fisheries sector in selected landing sites in Kalangala District.
- iii. To assess the effect of sustainable management and development of fisheries on performance of the fisheries sector in selected landing sites in Kalangala District.

## **1.4: Research Hypotheses**

This study was guided by the following hypotheses

**H<sub>0</sub>:** Enforcement of Government policies on quality of fish yield standards have not significantly enhanced performance of the fisheries sub sector in selected landing sites in Kalangala District.

**H<sub>1</sub>:** Enforcement of Government policies on quality of fish yield standards have significantly enhanced performance of the fisheries sub sector in selected landing sites in Kalangala District.

## **1.5: Scope of the Study**

### **1.5.1: Content scope:**

The study was limited to finding out the effect of government policies on performance of the fisheries sector in selected landing sites in Kalangala district. Specifically, it focused on the key government policies in this sector conceptualized as enforcement of quality fish yield standards, involvement of community members and maintaining sustainable management and development of the fisheries sector. An analysis was therefore be made to reveal how each of these affects performance of the fisheries sector in selected landing sites in Kalangala district.

### **1.5.2: Time Scope**

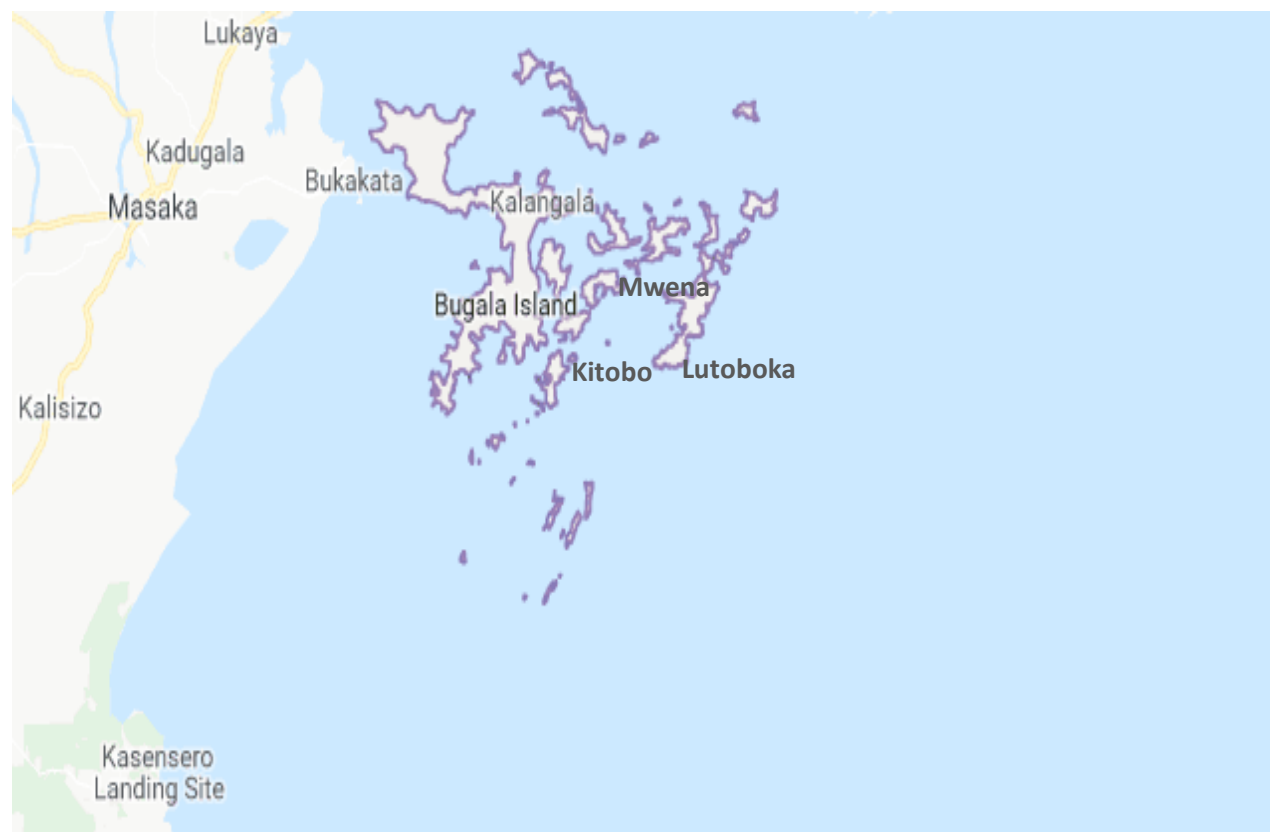
The study was limited to the periods ranging from 2010 to 2016 since this is the period within which performance of the fisheries sector in selected landing sites in Kalangala district was reported to be deterioration.

### **1.5.3: Geographical Scope:**

The study was geographically carried out in 3 purposively selected landing sites namely; Mwena, Kitobo and Lutoboka Landing Sites found in Kalangala District in Central part of Uganda.

### **1.6: Justification and Significance of the Study**

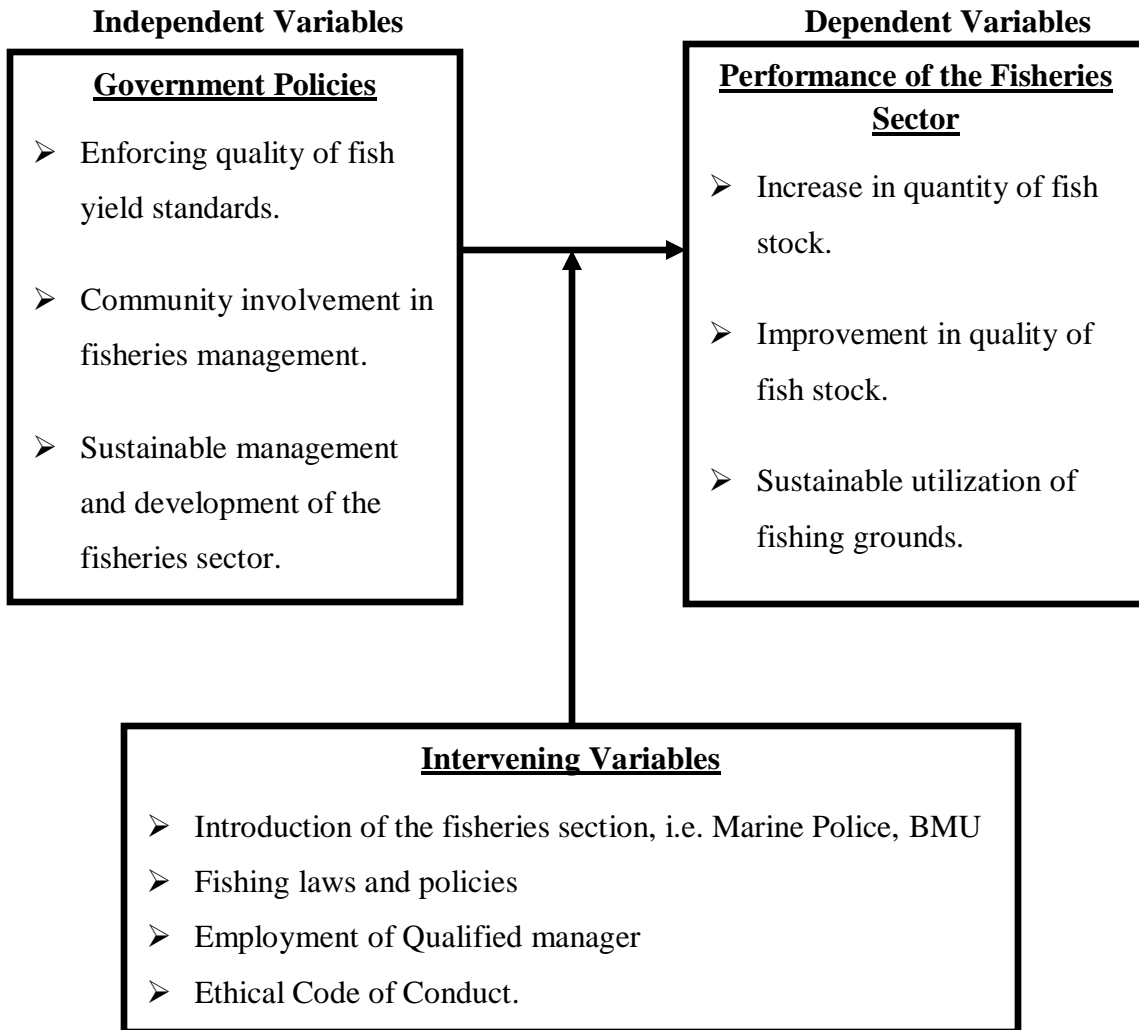
The study revealed the weaknesses within the existing government policies towards the fisheries sector in selected landing sites in Kalangala district. This will help policy makers to redefine approaches that would enhance performance of this sub sector. The study will also add to the existing knowledge regarding the role of government policies in performance of the fisheries sub sector. Scholars and other future researchers who would like to carry out more studies on such variables will find this study helpful.



**Fig 1.1: Showing selected landing sites in Kalangala District developed by Globefeed.com. 9 May (2014)**

## 1.7: Conceptual Framework

The conceptual framework hereunder presents the independent and the dependent variables and how they relate in reference to the objectives of the study



**Figure 1.2: The Conceptual Framework**

**Source: Kweka (2006), Modified by the researcher, 2018**

In the above conceptual framework the independent variable of the study which is government policy involving enforcing quality of fish yield standards like ensuring adherence to legal minimum fish sizes, adherence to standard net sizes and regular inspection of fishing plants; community involvement in fisheries management like Institution of BMUs and Community



empowerment as well as sustainable management and development of the fisheries like protection and conservation of fishing grounds and regular monitoring of fishing grounds.

It also shows the dependent variable is performance of the fisheries sector in Kalangala Landing Site conceptualized as involving increase in quantity of fish stock, improvement in quality of fish stock and sustainable utilization of fishing grounds. Conceptually, all the three government policies (enforcing quality of fish yield standards, community involvement in fisheries management as well as sustainable management and development of the fisheries) are expected to have a significant effect on performance of the fisheries sector in Kalangala Landing Site assuming the intervening variables like introduction of the fisheries sector, i.e. BMUs, Marine police, employment of the local people and awareness about fishing regulations, laws and policies are effective and held constant. The Conceptual Framework indicates that once independent variables are effective through ensuring adherence to legal minimum fish sizes, standardized fish nets, institutional empowerment (BMU) as well as regular inspection at all landing sites, they will be in position to properly achieve the dependent variables.

## **1.8: Operational Definition of Key Terms**

### **Government Policy**

This refers to a deliberate government effort geared towards development of the fisheries sector.

### **Enforcement of quality fish yield standards**

This refers to a deliberate government policy of ensuring that the fishing products caught in the different landing sites meet the generally acceptable legal standards in terms of sizes and age using the standard fishing nets. Registration of fishing vessels (obligation of registration of fishing vessels and definitions of governing conditions).

Licensing provisions, including; local fishing vessel requirements; and other licenses (requirements for any other fisheries activity, including sport fishing).

Offences and enforcement; methods of fishing, Trade and commerce in fish illegally caught, Obstruction of officers, Powers of officers, Procedure of penalization.

### **Involvement of community members in fish management**

This refers to a deliberate government policy of engaging community members in planning, monitoring and directing the activities involved in the fishing industry. Fishing communities have a clear economic interest in fishery management. This interest has been expressed traditionally as community control over fishing in near shore space. Many communities now are challenged to preserve their traditions, livelihoods and fishing infrastructure as their populations grow and economies diversify. One way for communities to maintaining their economic interest in fisheries is to take a more active role in fishery management.

### **Maintaining sustainable management and development of the fisheries sector**

This refers to a deliberate government policy of ensuring that there is adequate conservation, protection, proper use, economic efficiency and equitable distribution of the fisheries resources both for the present and future generations.

Fishery co-management is the sharing of authority and responsibility among government and stakeholders. It brings fishermen, processors, environmental organizations and other user groups into the management process in roles that range from advisors to co-equal decision makers with government agencies. The idea behind co-management is that having people directly involved in planning and decision making is more likely to result in fishery regulations that have better design greater buy-in, and improved compliance.

**Performance of the Fisheries Sector**

This refers to an improvement in performance of the fisheries sector reflected in terms of increase in quantity of fish stock, improvement in quality of fish stock and sustainable utilization of fishing grounds, generate additional employment opportunities in fisheries and ancillary industries to help alleviate poverty, improve nutritional levels, improve the socio-economic conditions of the fishermen, fish farmers and other people engaged in the fishery sub-sector, increase export earnings from shrimps, fish and fish products and improve environmental conditions.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.0: Introduction**

This chapter presents the literature available on the variables under study. Literature was sourced from research reports and various journal articles. Literature was reviewed in accordance with the specific objectives of the study.

#### **2.1: Effect of enforcing quality fish yield standard on performance of the fisheries sector**

Many governments have fish quality standards in place, to protect domestic consumers or provide producers access to international markets where consumers' demands are transmitted through retail chains (Hishamunda *et al.*, 2012). Moreover, many governments provide farmers operating legally in aquaculture zones access to free training, quality control of farmed fish to ensure food safety, water supply, wastewater treatment facilities, and market advice (Waite *et al.*, 2014). The Government of Uganda is also stringent on the quality assurance system for fish products. A functional Fish Inspection services has been established for the fish export but not for the local market (Karl and Boaz, 2005). The quality control officers not only oversee the adherences to standards in the fisheries sector but also undertake regular monitoring and control inspection of landing sites and fishing camps to make sure that fisher are adhering to fish handling standards. Quality control officers of the fish processing factories make regular inspection of fish processing plants to ensure that quality standards are adhered to. Fish processors also train fishers and fish agents regarding hygienic methods of handling fish (Kweka *et al.*, 2006). The quality assurance system in Uganda is fairly well developed but the laws and regulations are not in compliance with the current market requirements (Karl and Boaz, 2005).

With the world increased requirements and policies on food quality and safety and the expanding global market, the fisheries sector should be able to more than fulfill the basic market requirements (Sinh, 2008). The author further observed that the changes and improvements in fish quality are reviewed through laws and regulations and activities of the competent authorities and operations management of processing facilities related to quality control and food safety in the food chain. Moreover, the design of fish processing facilities is important to reduce the possibility of contaminating food during processing and handling. According to Richard *et al.*, (2005), the design of new buildings, or the improvement of the existing buildings and equipment, should respect the following general principles; (i) The plant should have at least four doors: one door for the entry of raw materials, one door for the entry of production staff, one door for the shipment of finished products and one door for waste disposal, (ii) The onward flow principle that should ensure a forward progression of products, without back return, (iii) Production lines should not cross or overlap, (iv) Separation of cool and warm zones and (v) Clean and dirty areas should be separated.

According to Kweka *et al.*, (2006), some measures have already been taken to address the environmental problems in the fishing communities. One such measure is the establishment of Beach Management Units (BMUs) by the Lake Victoria Environmental Management Programme (LVEMP) funded by the World Bank. Under the BMU's initiative, fishing communities in land sites and the community at large do self-policing to stop environment degradation activities such as fish poisoning (Kweka *et al.*, 2006).

In a study conducted by Kaimakoudi *et al.*, (2009), it was revealed that quality assurance has the most significant positive effect on market performance of Greek fisheries firms. Furthermore, quality assurance and consequently quality certification were found to be very essential strategies for increasing the market performance of the Greek fisheries firms, which nonetheless could indicate the potential as both an incentive to enhanced fisheries management and a barrier to trade. A study conducted by Munizu (2013) also revealed that Total Quality Management (TQM) practices have a positive and significant effect both on organizational performance and competitive advantage of the Fishery Industry in South Sulawesi Province of Indonesia. Moreover, attention to quality control generates positive impact to business performance through both the impact on production costs and earnings (Gaspersz, 2005).

## **2.2: Effect of Community Involvement in Fisheries Management on Performance of the Fisheries Sector.**

Community involvement in fisheries management is an approach that has been adopted internationally in response to the perceived failure of centralized management of fisheries in preventing the decline of fish stocks and the lack of government agencies to effectively manage fisheries resources and tackle socio economic issues arising from the fisheries (Nunan, 2006; Njaya, 2007). This arrangement was anticipated to empower local communities in exercising their new legal rights in a responsible manner by taking care of the fisheries resources, raising productivity and their incomes and improving fisheries dependent livelihoods (Njaya, 2007).

The National Fisheries Policy (2004) recognizes the need for community involvement in fisheries management and indeed supports public participation in the management of the fisheries resources and equitable sharing of the benefits. This will ensure respect for traditional cultures and knowledge, access to resources, and due regard to gender and equity. Fisheries

development will involve active participation of women and youth. There will be equitable representation in decision-making, shared responsibilities and benefit sharing by all groups (Ikwaput, 2003). Under Policy Area 2, community involvement in fisheries management is also addressed. Stakeholders will be involved in the management of fisheries by devolving some decision-making responsibilities to local governments and communities. The strategies to achieve this includes: (a) create the necessary enabling environment in legislation to permit the establishment of fisheries management institutions at local government and community levels to ensure the effective participation of stakeholders in the fisheries sector; (b) strengthen and re-orientate the role and structure of the fisheries lead agency in accordance with government policy to support decentralized management involving fisheries communities; (c) devolve some decision-making responsibilities to the appropriate levels so as to permit local governments and communities to engage in fisheries management and development activities in accordance with national policies and guidelines; and (d) provide legal recognition of fisheries community and their rights of management over fisheries resources in the neighborhood (Ikwaput, 2003).

To involve community members in fisheries management, Beach Management Units (BMUs) were created at pre-existing fish landing sites (Department of Fisheries Resources, 2003). The BMUs are community-run governing bodies that manage the fishery and share policy development, enforcement and research duties with each state's fisheries department. The BMUs enforce the fishing rules established for the lake, serve as data collection points for monitoring and increase community members' capacity to manage their fishing profits (Ebong *et al.* 2003). The BMUs were created to standardize the rules of fisheries extraction throughout Lake Victoria, such that illegal practices are reduced and fish stocks remain sustainable. The LVFO and BMUs

are designed to transcend resource issues across national borders and to overcome the differences in fisheries management that come with varying degrees of decentralisation among the three governments. The BMUs attempt to reduce constant external enforcement by the central government and to internalise patterns of behaviour with roles, rules, regulations and goals that are created and clearly defined by communities (Stein, 2008).

In a study conducted by Ogwang' *et al.*, (2009), it was reported that beach management units (BMUs) at the community level have been effective in the elimination of illegal fishing methods, collection of revenue on behalf of the local government and have actively participated in the fisheries decision making processes. They further stated that the involvement of the resource users in the management has not only empowered them but also improved their livelihoods. Onyango and Jentoft (2007) point out that unlike the traditional or customary institutions the BMUs have not been able to tackle the challenges of overfishing and illegal fishing practices because their formation was not grounded on the socio-cultural environment in which they exist. Drawing from experience of co-management in Africa, Hara (2003) report little evidence on the effectiveness of co-management in sustainable fisheries. This is also supported by Onyango (2004) that co-management has had very little success in fisheries management. This is because, most of the community members lacked adequate facilitation and empowerment to effectively manage the fishing resources.

The local BMCs were formed to formulate byelaws and enforce them together with national legislations in partnership with the fisheries posted staff (MAAIF, 2003). For effective management of any resource, there must be guidelines to follow in exploiting it. This is based on the fact that resources are scarce and therefore must be used sparingly or else, they can't be



sustained. They were meant to give authority through making byelaws for fishers operating from the beach to fish in particular areas, for particular species of fish using recommended and legal fishing gears and methods, enforce in collaboration with the central government or local governments safety guidelines for fishing operations and Fish Quality Assurance Sanitary, conduct patrols in the beach and neighborhood fishing grounds in collaboration with fisheries staff and other government agencies, among others (MAAIF, 2003). These were sought to translate into; improved fish stocks that would lead to increased fish production, internationally acceptable fish quality thus increased revenue, reduced use of illegal gears and methods, hygiene and sanitation at beaches, etc.

Zwieten *et al.*, (2003) stated that co-management is an emerging trend and is usually applied in the management of common property resources, such as fisheries especially capture fisheries, floodplains and forests. Therefore, there is an increasing realization among fisheries managers that fisheries management must include participatory approaches, to address the many challenges and or complex issues including many interests, interest groups, disciplines and issues. Zwieten *et al* further said, it is also becoming generally accepted that fisheries management cannot be based on simple predictability of nature and fisheries behavior, but must take an adaptive approach. Fisheries management must therefore develop into participatory learning systems accepting and able to handle the uncertainties and risks associated with management in uncertain situations and this presents with it several challenges on the side of the resource managers.

### **2.3: Effect of Sustainable Management and Development of Fisheries on Performance of the Fisheries Sector.**

Fisheries management plays a significant and important part in the economy of the country contributing to foreign exchange, food security and employment creation. The purpose of fisheries management is to ensure conservation, protection, proper use, economic efficiency and equitable distribution of the fisheries resources both for the present and future generations through sustainable utilization (Ikwaput, 2003). Fisheries management in Uganda started in 1914 (Ikwaput, 2003). Before then, the fishery was under some form of traditional management based on the do and don'ts. History shows that the Baganda had strong spiritual beliefs in respect of "god Mukasa" (god of the Lake) and these indirectly contributed to sustainable management of the lake. If a fisherman neglected to comply with any of the ceremonies related to fishing he was expected to encounter a bad omen (Roscoe, 1965).

The responsibility for Fisheries Management in Uganda was vested in the Central Government with out-posted field staff based at the district. The State commanded sole responsibility for both monitoring and regulating the resource base. There was little or no participation by the community and other stakeholders in management of the fisheries resources. Fisheries management involves a number of tasks, which include policy formulation, resource estimation, access rights, harvesting regulations, market regulations, monitoring, control and enforcement. Through effective regulation, resource management seeks to gain 'optimum' outputs from the resource base. In a few cases, management may recognize that a resource is under-utilized and seek to increase output. However, in Uganda, management recognizes that many fisheries resources are close to being over-utilized, and so is seeking to limit exploitation. Moreover, the national vision for Uganda's fisheries sector is "an ensured sustainable exploitation of the fishery

resources at the highest possible levels, thereby maintaining fish availability for both present and future generations without degrading the environment" (Ikwaput, 2003) which underscores the importance of ensuring sustainable management and development of the fisheries sector.

The National Fisheries Policy (2004 ) also recognizes the need for sustainable management and development of the fisheries sector and indeed it is indicated under policy area 1 that fisheries will be managed and developed to promote socially, economically and environmentally sustainable use and development of the resources so as to meet the needs of present generations without compromising the ability of future generations to meet their needs. Mkumbo *et al.*, (2007) also indicated that that unsustainable fishing practice have caused a serious decline of fish populations.

Finding ways to manage wild fishery stocks and carrying out aquaculture together, while also considering the environmental consequences of both practices, is one of the major challenges facing stakeholders in fisheries (McVey 2001). Moreover, Cinti *et al.*, (2009), in the fisheries sector, controlling who accesses a fishing ground and how the resource is harvested by those entering the fishery are critical for limiting exploitation to sustainable levels (Cinti *et al.*, 2009). Healthy aquatic ecosystems are able to produce high social and economic benefits while remaining ecologically sustainable at the same time (Arlinghaus *et al.* 2002). This kind of sustainability is called strong sustainability. It assumes that the various forms of capital (biological, ecological, economic, social) are not equivalent but complementary, and should each be conserved in their own right (Costanza and Daly 1992). Thus, strong sustainable development in fisheries includes reference to environmental quality, biological integrity, ecosystem health and biodiversity (Arlinghaus *et al.* 2002). In contrast, anthropocentric weak sustainability implies

that natural, man-made, human and social forms of capital are perfect substitutes for each other (Arlinghaus *et al.* 2002). Nevertheless, the need to manage fisheries sustainably is a major challenge for the future, particularly since so many varied objectives are involved. The interests of various stakeholders make it hard for decision-makers to protect fish stocks, and ensure that often over-grown fishing communities can be truly sustainable. Improvements are being made in certain areas, but it is far from clear whether they are happening fast enough to avoid further collapses (MacGarvin, 2001).

#### **2.4: Research Gap**

The foregoing literature reveals that several previous scholars have conducted studies on the different government policies like enforcing quality fish yield standards, community involvement in fisheries management and sustainable management and development of the fisheries sector. Nevertheless, it appears that previous scholars did not clearly bring out a direct effect of these variables on performance of the fisheries sector. Moreover, evidence from the available literature indicates that very few studies have been conducted in the context of developing countries for instance Uganda where the growth of the fisheries sector. Governments and fisheries managers have changed their practices and approaches over the decades in response to these environmental, economic, and social challenges. Fisheries management organizations have also evolved in the way they carry out four core functions. Despite their earlier findings, the literature reviewed is reportedly done in previous years of 2015 and below. Currently, new developments have come up. Thus, this has called for a study like this, to try to empirically test the literature reviewed and weigh the progress on the effect of government policies on performance of the fisheries sector with specific reference to selected landing sites in Kalangala District.

## CHAPTER THREE

### METHODOLOGY

#### **3.0: Introduction**

This chapter describes the methodology that was used in carrying out the study. It focuses on the research, the study population, sampling (size and selection), data collection methods, data collection instruments, validity and reliability as well as data analysis.

#### **3.1: Research design**

A research design relates to the strategy or schedule used to collect evidence, to analyze the findings and from which to draw conclusions. A cross section research design was used. A cross-sectional descriptive case study design was used in accordance with Amin (2005), which he regards as the most appropriate and commonly used in social sciences and aims at selecting representative elements of the cross section of the population in the communities at a particular time. This study design was proposed because it investigates a contemporary phenomenon within its real life context; when boundaries between phenomenon and context are not evident: and in which multiple sources of evidence are used (Yin, 1984, as cited by Amin, 2005). It will be conducted across the selected sample over a short period of time. Both quantitative and qualitative techniques will be applied in the process of data gathering, data analysis and in the presentation of the findings in order to achieve a higher degree of validity and reliability.

A descriptive research design was used in the study basing mostly on the quantitative and qualitative research approaches. This design was appropriate because it involved a descriptive analysis of respondents' ideas and views on the effects of Government policies on the performance of the fisheries sector in three selected landing sites of Kalangala District. This helped to yield in depth information on the study objectives. The study followed sequentially,

being with interviews that were backed up by documents and records on fisheries of these selected landing sites of Kalangala District and the ministry of fisheries. The quantitative approach was used because of the effect of Government policies on performance of the fisheries sector.

### **3.2. Study area**

The study was geographically carried out in 3 purposively selected landing sites namely; Mwena, Kitobo and Lutoboka Landing Sites found in Kalangala District in Central part Uganda. The district is coterminous with the Ssesse Islands in Lake Victoria and does not have territory on mainland Uganda. Like other Ugandan districts, it is named after its 'chief town', Kalangala which is located on Bugala Island, the largest of the Ssesse Islands. Kalangala District is bordered by Mpigi District and Wakiso District to the north, Mukono District to the northeast and east, the Republic of Tanzania to the south, Rakai District to the southwest, Masaka District to the west and Kalungu District to the northwest. The district headquarters at Kalangala, are located approximately 60 kilometres (37 mi), across water, southwest of Entebbe, in Wakiso District. The coordinates of the district are: 00 26S, 32 15E. Kalangala District covers an area of 9,103 square kilometres (3,515 sq mi), of which only 468.3 square kilometres (180.8 sq mi) (5.1%) is land and the rest is open water. The district is made up of eighty four widely scattered islands in the northwestern part of Lake Victoria of which only forty three are inhabited. The biggest island is Bugala Island which covers 296 square kilometres (114 sq mi) or 63.2% of the district land mass.

### 3.3: Study Population

A research population according to Blanche, Durrheim and Painter (2006) relate to the total universe of units from which the sample is to be selected. This study population consisted of fish traders, fish processors, boat builders and repairers, fisheries officers and BMU members in Mwena, Kitobo and Lutobokaselected landing sites in Kalangala District. These were 308 individuals according to statistics obtained from the production department in Kalangala District Local Government. Details are presented in table 3.1 in subsequent sub sections.

### 3.4: Sample Size

According to Oso & Onen (2009), a sample is part of the target (or accessible) population that has been procedurally selected to represent it. Sekaran (2003) observes that collecting data from the entire population would be practically impossible and it would be very difficult to examine every element in the population. Consequently, a sample of 282 persons was determined from the study population of 308. These were determined following the guidance of Neumann's formula (2000).

#### Sample Size Determination

The sample size of respondents is 60 as calculated using Neumann's formulae as follows. Of which the study concentrated on Fish Traders, Fish Processors, Boat builders and repairers, Fisheries officers, BMU members and others.

$$n = \frac{N}{1 + N(e)^2}$$

Where:

n = sample size

N = target population

e = level of significance = e = 0.05 = e<sup>2</sup> = (0.05)<sup>2</sup> = 0.0025

### 1) Mwena Landing Site

$$n = \frac{167}{1 + 167(0.05)^2}$$

$$n = \frac{167}{1 + 167(0.0025)}$$

$$n = \frac{167}{1 + 0.4175}$$

$$n = \frac{212}{1.4175}$$

$$n = 118$$

### 2) Kitobo Landing Site

$$n = \frac{121}{1 + 121(0.05)^2}$$

$$n = \frac{121}{1 + 121(0.0025)}$$

$$n = \frac{121}{1 + 0.3025}$$

$$n = \frac{121}{1.3025}$$

$$n = 93$$

### 3) Lutoboka Landing Site

$$n = \frac{87}{1 + 87(0.05)^2}$$

$$n = \frac{87}{1 + 87(0.0025)}$$

$$n = \frac{87}{1 + 0.2175}$$

$$n = \frac{87}{1.2175}$$

$$n = 71$$

$$\text{Total Sample Size} = 71 + 93 + 118$$

$$= 282$$



**Table 3.1: Showing the Study Population, the Sample Size and Sampling Techniques**

Category	Landing Sites (Population)						Sampling Techniques
	Mwena Landing Site		Kitobo Landing Site		Lutoboka Landing site		
Fish Traders	95	65	65	49	54	44	Stratified random sampling
Fish Processors	31	25	25	20	10	9	Stratified sampling
Boat builders and repairers	9	7	7	5	5	4	Stratified random sampling
Fisheries officers	7	6	5	4	3	2	Stratified random sampling
BMU members	25	15	19	15	15	12	Stratified random sampling
<b>Targeted Population per Landing Site</b>	<b>167</b>		<b>121</b>		<b>87</b>		
<b>Sample Size</b>		<b>118</b>		<b>93</b>		<b>71</b>	

Source: Primary Data, 2018

### 3.6. Data Collection

The researcher only used questionnaires as the study instrument since the study was purely quantitative. This instrument is described below

#### 3.6.1. Questionnaire

According to Oso and Onen (2008), a questionnaire is a data collection tool in which the respondents respond to the number of items in writing. A closed ended questionnaire was used to collect data from all respondents in the study area. The justification for using this instrument is that questionnaires are easy to quantify and analyze. Kothari (2004) also observed that questionnaires are economical in terms of time, energy and finances. In addition Mugenda and

Mugenda (2003) noted that close-ended questions enable a researcher to form an opinion and make a valuable conclusion. The questionnaire was composed of two sections. The first section gathered respondents' demographic information such as age, gender, educational level and number of years respondents had spent in the study area. The second section was comprised of the variables under study. Likert-format items were presented with 5-point scales. Where 1=strongly disagree, 2= disagree, 3= Not Sure, 4= agree, 5= strongly agree.

### **3.7: Validity of the Instruments**

Krishnaswamy *et al.*, (2009) contend that validity is the degree to which the sample of test items represents the content the test is designed to measure. Krishnaswamy *et al.*, (2009) further argue that the usual procedure in assessing the content validity of a measure is to use a professional or an expert in a particular field. To establish the validity of the research instrument, opinions of experts in the field of study, including the research supervisor, were sought. This led to the revision and modification of the research instrument thereby enhancing the overall validity of this study. A content validity index was also computed using the following formula.

$$\text{CVI} = \frac{\text{Items identified as suitable}}{\text{Total number of items being judged}}$$

Total number of items being judged

A content validity index was computed by dividing the number of items selected as suitable (24 items) with total number of items being judged (26 items). A content validity index of 0.92 was obtained which indicates that the instrument was valid since items with validity co-efficient of at least 0.70 are accepted as valid in research (Oso *et al.*, 2008).

### 3.8: Reliability of Instruments

Reliability refers to the consistency and stability with which an instrument measures and supplies consistent results (Krishnaswamy *et al.*, 2009). The instrument was pilot tested on a sample of 282 respondents in the study area, but the researcher tested 250 valid returned questionnaires. Kombo and Tromp (2006) posit that after constructing a research instrument or questionnaire the researcher should try it out on a small sample of the population. Results of the pilot study were edited, categorized and entered into a computer program known as Statistical Package for Social Scientists (SPSS). Using the SPSS, a Cronbach's co-efficient test was computed to test for reliability of the instrument. The results are as on Table 3.2.

**Table 3.2: Reliability of instruments**

No. of items	Section of the questionnaire	Cronbach Alpha
1.	Quality of Fish Yield Standards	.790
2	Community Involvement in Fisheries Management	.788
3	Sustainable Management and Development of Fisheries	.891
	<b>Average</b>	<b>.823</b>

Source: Field Data, 2018

The reliability coefficient for each of the sections above exceeds 0.65. As can be seen from table 3.2, the lowest was 0.788 and the highest was 0.891. The average was 0.823 or 82.3%. According to Chadwick, Bahr and Aibrecht (1984: 250) as cited in Ehlers (2002:27) are of the opinion that reliability will be acceptable at a level of 0.6 or above, with absolute reliability of 1.0 implying that the scales on the questionnaire that were used to measure the three (3) sections were reliable and consistent for the study.

### **3.8: Data Analysis**

Data analysis is a practice in which raw data is ordered and organized so that useful information can be extracted from it (Gall, Gall & Borg, 2007). Orodho (2008) also defines data analysis as a process of systematically searching and arranging field notes, data and other materials obtained from the field with the aim of increasing your understanding of them. In this study, primary data collected from the field was edited, categorized and entered into computer using Statistical Package for Social Scientists (SPSS). Pearson Product Moment Correlation Coefficient was used to establish the effect of each of the government policies on performance of the fisheries sector in Kalangala Landing Site. Regression analysis was also carried out to estimate how a change in the dependent variable could be explained by a change in the independent variables.

### **3.9: Ethical Considerations**

The researcher took the ethical aspects seriously by first seeking for permission from management of Kalangala Landing Site to conduct this study. Questionnaires were structured in such a way that there was no mention of the respondents' name. A statement as to the strict confidentiality with which data would be held was expressly stated in the questionnaire. Ethical considerations were also be taken care of by the researcher by briefing the respondents as to the purpose of the research, their relevance in the research process, and expectations from them.

### **3.10: Limitation of the Study and Counteraction Measures**

The research met with various challenges while conducting the current study. Among others, the researcher encountered some financial constraints especially in regard to financial costs involved in transport, airtime and stationery. However, the researcher used his past savings to meet these financial expenses.

Language barrier is another challenge that was met by the researcher. This was especially among some respondents who found difficulty in understanding some of the concepts in the questionnaire. However, the researcher translated the items for the respondents so as to make them understand their meaning in the context of the study.

Some of the respondents also thought that the researcher was carrying out the study to be paid by some organizations; so they asked for some financial facilitation. To mitigate this limitation, the researcher informed the respondents that the questionnaires were used to obtain data for academic research purposes only and the recommendations which if implemented would improve the existing conditions for their own benefit.

## **CHAPTER FOUR**

### **DATA PRESENTATION, ANALYSIS AND INTERPRETATION**

#### **4.0: Introduction**

This chapter deals with data presentation, analysis and interpretation of results. The presentation of the results is done in three sections. The first section presents the response rate; the second section focuses on demographic characteristics of the respondents while the third section presents the major findings about the three specific objectives of the study. Pearson's correlations were used to analyze the relationship between study variables while regression analysis was used to estimate how a change in the dependent variable could be explained by a change in each of the independent variables.

#### **4.1: Response Rate**

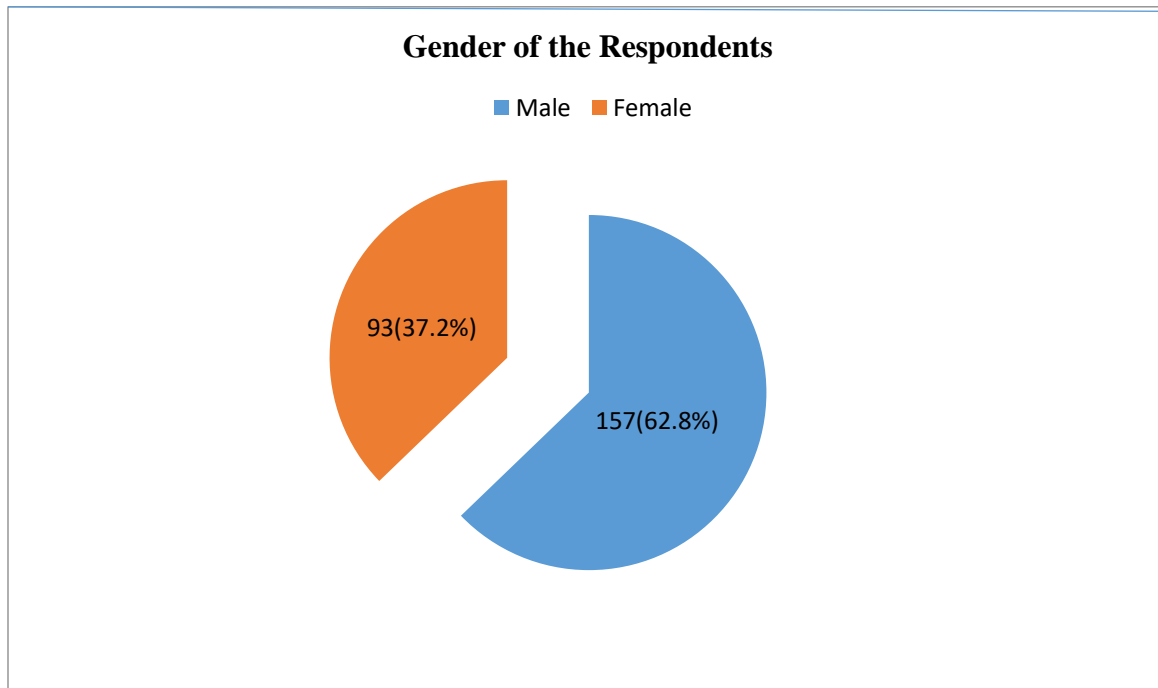
A total of 282 questionnaires were distributed to the selected respondents in the study area. Out of the 282 questionnaires that were distributed, 250 questionnaires were fully completed and returned to the researcher and therefore considered for data analysis. This suggests an 89% response rate. This response rate was deemed to be appropriate since Kothari (2004) asserts that any response rate of 50% is adequate, while a response rate greater than 70% is very good.

#### **4.2: Demographic Characteristics of Respondents**

Descriptive statistics such as frequencies and percentages relating to the demographic characteristics of respondents are presented in this section. These include respondents' gender, age, level of education and number of years respondents had spent in the study area. Understanding this situation helped the researcher to come up with proper information about the nature of the respondents in the area of study.

#### 4.2.1: Gender of the Respondents

The results for the gender distribution of respondents are presented in figure 4.1 below;

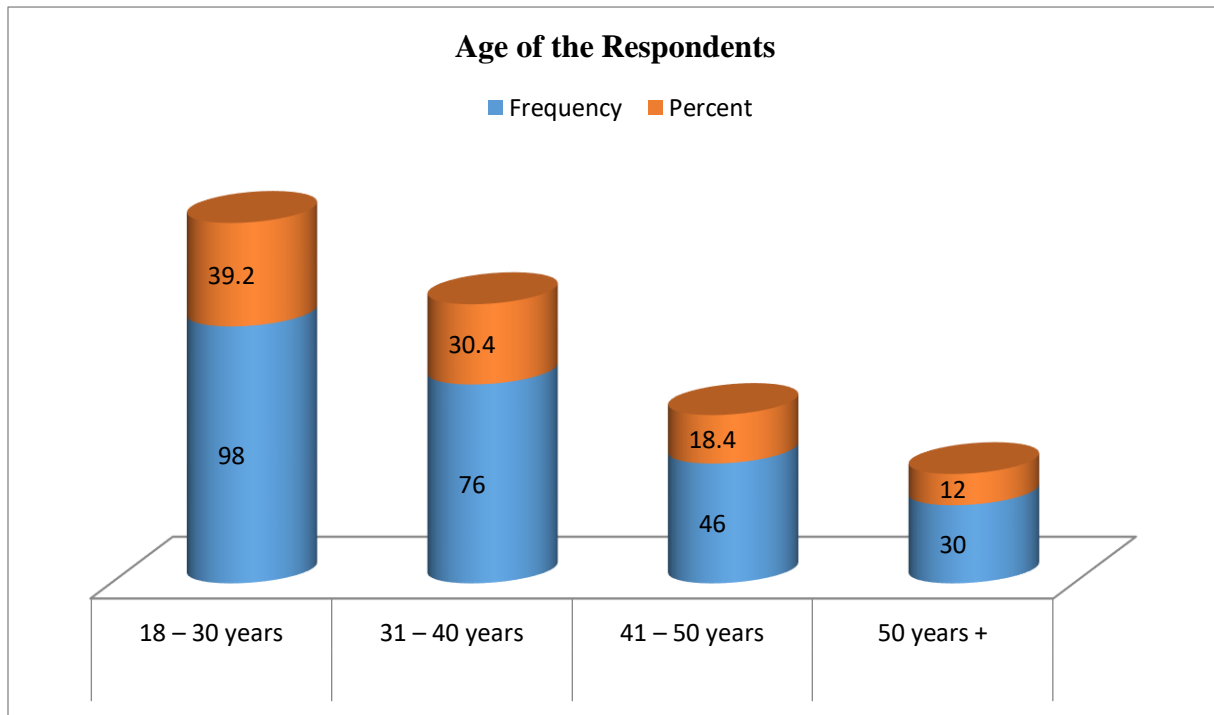


**Figure 4.1 Showing Gender of respondents**

Figure 4.1 above shows that the male respondents constituted 62.8% and females constituted 37.2%. This indicates that it is males dominate the fishing sector in the selected landing sites in Kalangala district. This also confirms what was observed by the MAAIF (2003) that women have traditionally been excluded and men at almost all levels dominate the fisheries sector and this domination, together with the lower status in many cultures around lakes, mean that women have not benefited from fisheries resources.

#### 4.2.2: Age of the Respondents

The study further investigated the age of respondents. The results are presented in figure 4.2 below.



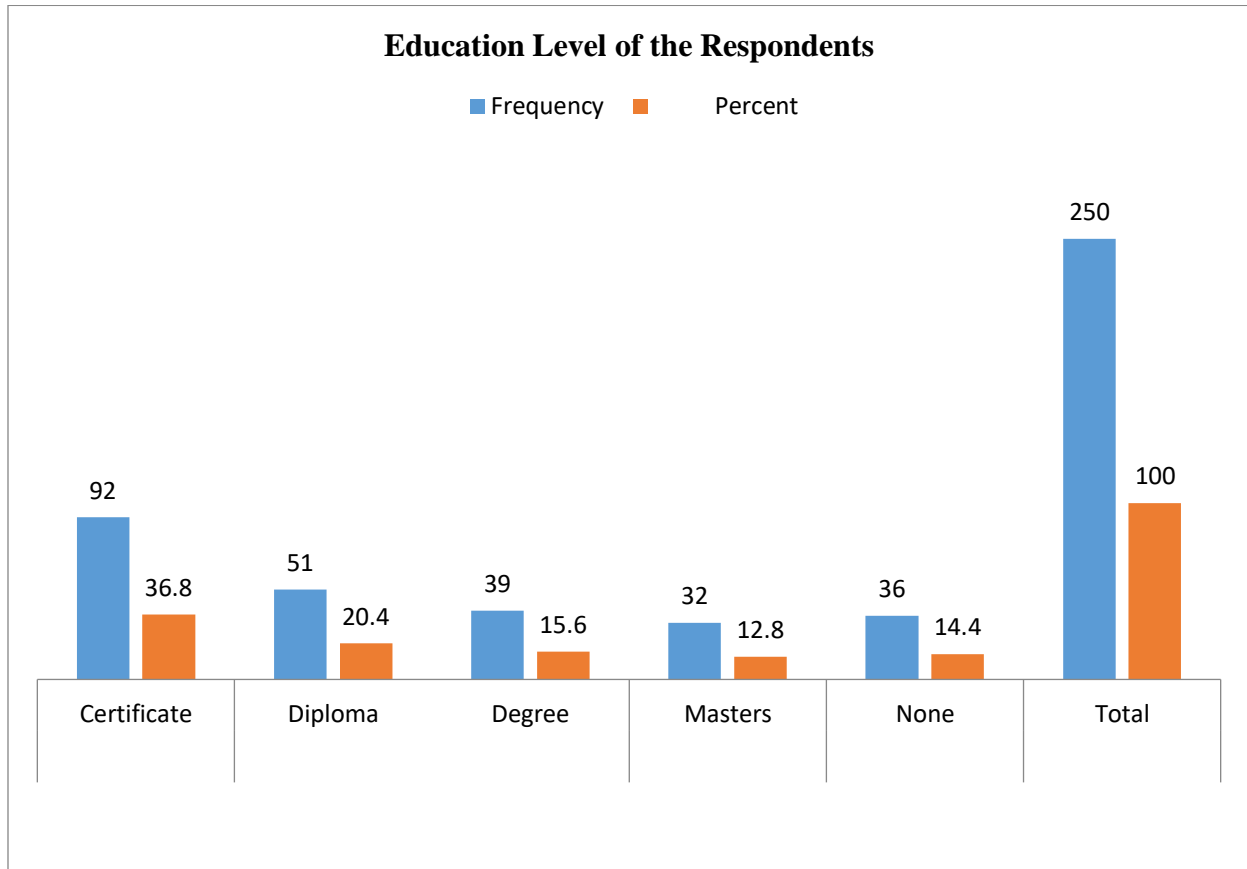
**Figure 4.2 showing age of respondents**

The findings in figure 4.2 above shows that respondents in the age bracket of 18 - 30 years were the majority representing 39.2% followed by those in the age racket of 31 – 40 years who constituted 30.4%. Those between 40 – 50 years constituted 18.4% while those over 50 years constituted 12%. The results confirm what was observed by Muzige (2009) that fishing activities are mostly done by people of between the age of 20 and 40. This seemed to suggest that it is the age bracket when most people are very energetic and active in fisheries activities.



### 4.2.3: Education Level of the Respondents

The study further investigated the level of education of respondents. The results are presented in figure 4.3 below.



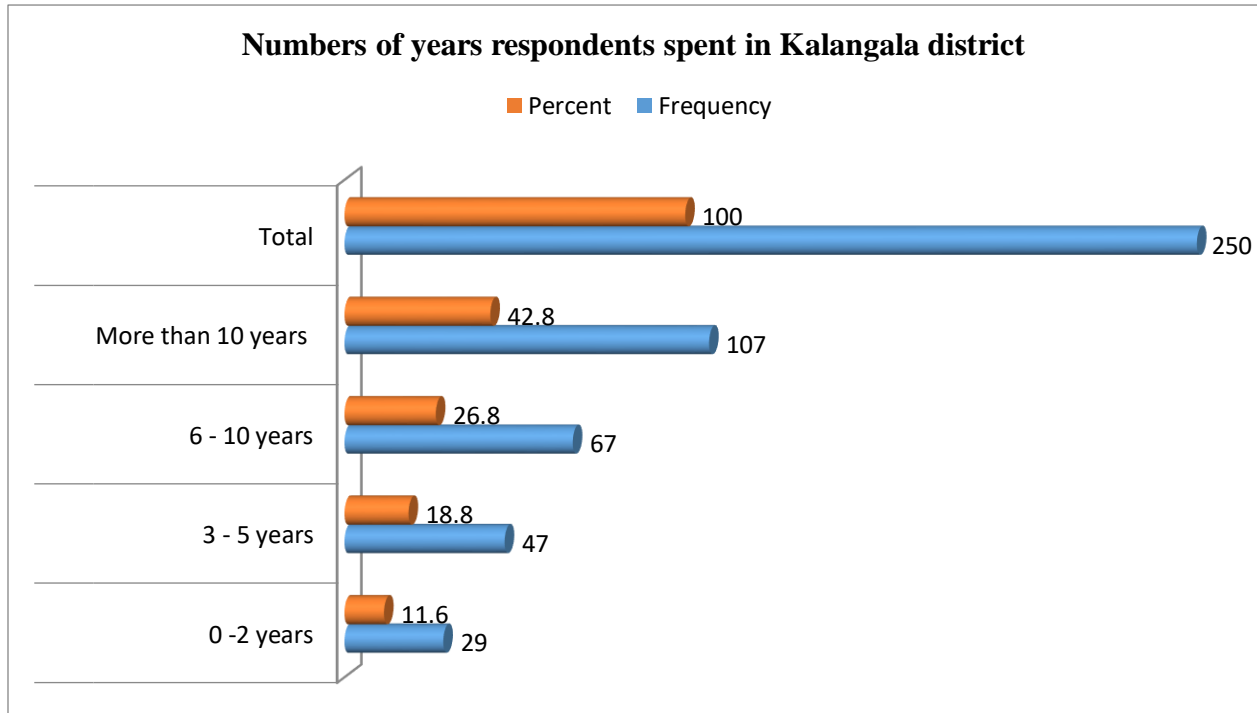
**Figure 4.3 showing Education level of respondents**

As far as educational achievement was concerned, it was found out that 36.8% of the selected respondents possessed certificate level education, 20.4% had diplomas, 15.6% had bachelor's degrees and 12.8% had master's degrees and 14.4% never attended school. Dominance of certificate owners confirms what was observed by Muzige (2009) that fishing activities are mostly practiced by people with no and or less education.

#### 4.2.4: Number of years respondents had spent in the study area

The study further investigated about the number of years respondents had spent in the study area.

The results are presented in figure 4.4 below.



**Figure 4.4: showing number of years respondents had spent in the study**

From figure 4.4, it is evident that majority of the respondents 42.8% had spent more than 10 years in the study area followed by those who had spent between 6 – 10 years who constituted 26.8%. Those that had spent between 3 – 5 years constituted 18.8% while those that had spent between 0 – 2 years constituted only 11.6%. This implies that majority of the respondents had dealt with the study area for a considerable period which indicates that most of them had the ability to articulate issues pertaining to performance of the fisheries sector in selected landing sites in Kalangala district.

### **4.3: THE EFFECT OF ENFORCING THE QUALITY OF FISH YIELD STANDARDS ON PERFORMANCE OF THE FISHERIES SECTOR IN SELECTED LANDING SITES IN KALANGALA DISTRICT.**

#### **4.3.1: Introduction**

In this section, the researcher presents the major findings relating to the variables under study. These are presented following the specific objectives of the study.

This was the first objective of the study and it was meant to establish whether enforcing the quality of fish yield standards had any statistically significant effect on performance of the fisheries sector in selected landing sites in Kalangala District. The researcher formulated questions that required respondents to indicate the extent to which they agreed or disagreed with various aspects about enforcing the quality of fish yield standards in selected landing sites in Kalangala District.

The fishing sub sector must ensure that fish handling, processing and transportation facilities meet requisite standards. Adequate training of both industry and control authority staff must be provided by support institutions, and channels for feedback from consumers established. Ensuring high standards for quality and safety of fish and fishery products is good economics, minimizing losses that result from spoilage, damage to trade and from illness among consumers.

#### 4.3.2: Inspection of Fish Businesses on this Landing Site.

Respondents were asked whether the Government carries out regular inspection of fish businesses on this landing site to ensure compliance with national quality standards, their responses were as summarised in table 4.1.

**Table 4.1: Responses on Government Inspection of Fish Businesses at Landing Site.**

	Frequency	Percent	Cumulative Percent
Strongly Disagree	31	12.4	12.4
Disagree	43	17.2	29.6
Valid Agree	112	44.8	74.4
Strongly Agree	64	25.6	100.0
Total	250	100.0	

Source: Primary Data, 2018

Findings in Table 4.1 above presents that out of 250 respondents involved in this study, 176(70.4%) were in agreement that the government carries out regular inspection of fish businesses on Kalangala landing sites to ensure compliance with national quality standards. This is a clear implication that the majority of people in fish business comply with Fish (Quality Assurance) Rules, 2008. According these rules, the inspector is allowed to enter, inspect and search, at a reasonable time, any establishment, vessel, vehicle, premises or site where aquaculture is practised. This study indicated that 74(29.6%) of the respondents were in disagreement indicating that fish inspectors do not offer thorough inspection on fish inspection businesses on these landing sites thus unimproved service delivery.

### 4.3.3: Issuance of quality control guidelines to be followed by fishermen.

When respondents were asked whether the fisheries authorities on this landing site regularly issue quality control guidelines to be followed by fishermen, their responses were as indicated in Table 4.2.

### 4.2: Issuance of quality control guidelines to be followed by fishermen

	Frequency	Percent	Cumulative Percent
Valid			
Strongly Disagree	39	15.6	15.6
Disagree	28	11.2	26.8
Not Sure	18	7.2	34.0
Agree	124	49.6	83.6
Strongly Agree	41	16.4	100.0
Total	250	100.0	

Source: Primary Data, 2018

According to findings in Table 4.2 above, the majority 165(66%) of the respondents generally agreed that the fisheries authorities on Mwena, Kitobo and Lutoboka landing sites also regularly issued quality control guidelines to be followed by fishermen. It was revealed that these guidelines consist of the operational techniques and activities that are used to fulfill requirements for quality. These guidelines also emphasized proper handling of fish between capture and delivery to the consumer as a crucial element in assuring final product quality. It was noted that 18(7.2%) were not sure on the statement and 67(26.8%) of the respondents disagreed. This implies that even though there are regular guidelines to maintain the quality, some fish businessmen and women disobeyed them, therefore the government through its authorities should penalize as by the law everyone who involve in malpractices with a sense of maintaining fish product quality.

#### 4.3.4: Training of the Fish Traders in Better Quality Control Practices

When respondents were asked whether the fisheries authorities on this landing site also regularly train the fish traders in better quality control practices and their responses were as summarised in Table 4.3.

**Table 4.3: Training of the Fish Traders in Better Quality Control Practices**

	Frequency	Percent	Cumulative Percent
Valid Strongly Disagree	58	23.2	23.2
Disagree	38	15.2	38.4
Not Sure	26	10.4	48.8
Agree	55	22.0	70.8
Strongly Agree	73	29.2	100.0
Total	250	100.0	

Source: Primary Data, 2018

Result of findings in Table 4.3 above indicate that 128(51.2%) of the respondents have similar opinions that the fisheries authorities on this landing site also regularly train the fish traders in better quality control practices. This indicates that fisheries authorities in Mwena, Lutoboka and Kitobo landing sites organize train sessions on how to fish traders and processors should avoid malpractices such as catching illegal size of fish, standards of sanitation, method of handling and the time/temperature of holding fish, among others. Though, 26(10.5%) of the respondents were not sure on the statement and 96(38.4%) of the respondents disagreed. This reveals that even though the authorities organized trainings on quality control practices, there were individuals who failed to comply with quality control policies and procedures, thus unimproved fish product quality in authorities in Mwena, Lutoboka and Kitobo landing sites.

**4.3.5. Improved techniques of fish handling, processing, preservation, storage, transportation and marketing in this landing site.**

The handling, processing, and marketing of fish products are essential complementary functions of all food production systems. On the question whether the Government encourages the use of improved techniques of fish handling, processing, preservation, storage, transportation and marketing in this landing site, their responses were as indicated in table 4.4.

**Table 4.4: Use of improved techniques of fish handling, processing, preservation, storage, transportation and marketing in this landing site.**

		Frequency	Percent	Cumulative Percent
Valid	Strongly Disagree	41	16.4	16.4
	Disagree	39	15.6	32.0
	Not Sure	35	14.0	46.0
	Agree	81	32.4	78.4
	Strongly Agree	54	21.6	100.0
	Total	250	100.0	

Source: Primary Data, 2018

From Table 4.4 above, the majority 135(54%) of the respondents were in agreement that the Government encourages the use of improved techniques of fish handling, processing, preservation, storage, transportation and marketing in Mwena, Lutoboka and Kitobo landing sites. This implies that fish products are iced, washed and transported in refrigerated vehicles to processing industry, however, 35(14%) were not sure on the statement and 80(32%) of the respondents were in disagreement. This indicates that sometime fish products are roughly handled; dragged on muddy grounds, poor refrigeration, and involvement of unlicensed fish traders also has tarnished the market, among others. Therefore, the Government should encourage all fish traders to practice improved techniques of fish handling, processing, preservation, storage, transportation and marketing to ensure performance of the sector.

#### 4.3.6: Enforcement of fisheries regulations at landing site to ensure better quality fish products.

Respondents were asked whether there is adequate enforcement of fisheries regulations on this landing site to ensure better quality fish products. Their responses were as depicted in table 4.5 below.

**Table 4.5: Enforcement of fisheries regulations on this landing site to ensure better quality fish products**

	Frequency	Percent	Cumulative Percent
Valid Strongly Disagree	60	24.0	24.0
Disagree	87	34.8	58.8
Not Sure	22	8.8	67.6
Agree	46	18.4	86.0
Strongly Agree	35	14.0	100.0
Total	250	100.0	

Source: Primary Data, 2018

Focusing on table 4.5 above, the majority 147(58.8%) of the respondents have similar opinions that there is no adequate enforcement of fisheries regulations on Mwena, Lutoboka and Kitobo Landings sites to ensure better quality fish products. However, 22(8.8%) were not sure and 87(58.8%) of the respondents were in agreement. This implies that the Government of Uganda has tried to enforce fisheries regulation in these selected sites. In an interview held with fish inspectors found in these landings, they argued that for any fisheries management strategy to be effective, the regulations designed must be effectively enforced. Most fisheries officials agree that the most important aspect of enforcement is education of the fisherman, and prosecution should be regarded as a last resort. Making fishermen familiar with all regulations that apply and the reasons for their imposition can be achieved by close personal contact, public meetings, radio talks, press articles, among others.



**4.3.7: Government appropriately punishes anyone violating quality fish yield standards at Kalangala Landing Sites.**

Respondents were asked whether Government appropriately punishes anyone violating quality fish yield standards at Kalangala Landing Sites, their responses were as presented in table 4.5.

**Table 4.6: Government appropriately punishes anyone violating quality fish yield standards at Kalangala Landing Sites.**

	Frequency	Percent	Cumulative Percent
Valid Strongly Disagree	44	17.6	17.6
Disagree	27	10.8	28.4
Not Sure	16	6.4	34.8
Agree	62	24.8	59.6
Strongly Agree	101	40.4	100.0
Total	250	100.0	

Source: Primary Data, 2018

Result of findings in table 4.6 above indicate that 163(65.2%) of the respondents were in agreement that Government appropriately punishes anyone violating quality fish yield standards at Kalangala Landing Sites. This means that all fish traders caught in action of distorting fish standards are imprisoned and fined huge sums of money. Though, 16(6.4%) were not sure whether people violates standards are punished or not and 71(28.4%) of the respondents disagreed. Therefore, the district and fisheries authorities should have clear and well-organized fishing policies in order to manage their fisheries. These policies should be developed with the cooperation of all groups that have an interest in fisheries, including the fishing industry, fish workers, environmental groups and other interested organizations, thus improved performance of fisheries sector.

### 4.3.8: Testing Hypothesis 1

The general hypothesis on objective one was tested to establish whether enforcing the quality of fish yield standards improves performance of fisheries sector in Mwena, Lutoboka and Kitabo landing sites. The analysis applied the Statistical Package for Social Scientists (SPSS) to compute the measurements of the regressions for the study. This hypothesis has been tested using various techniques such as model summary, correlation, Analysis of variance (Anova) and coefficients. The findings are provided below:

#### 4.3.8.1: Model Summary

The model summary shows the summary of the regression analysis as shown in the regression model. Below are the findings in the table 4.7:

**Table 4.7: Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.890 <sup>a</sup>	.792	.790	.15095

a. Predictors: (Constant), Enforcing the quality of fish yield standards

In order to explain the percentage of variation in the dependent variable (performance of the fisheries sector) as explained by the independent variables. From the results of the analysis, the findings show that the independent variables (enforcing the quality of fish yield standards) contributed to 89% of the variation in performance of the fisheries sector. Also the result of adjusted R Square of 79.2% shows that the model is a good prediction, thus improved enforcement of quality of fish yield standards in Mwena, Kitobo and Lutoboka Landing sites.

#### 4.3.8.2: Correlations

Correlation is a statistical technique that can show whether and how strongly pairs of variables are related. Correlation between the effect of enforcing the quality of fish yield standards and performance of the fisheries sector in Mwena, Lutoboka and Kitobo landing sites.

**Table 4.8: Correlations**

		Enforcing the quality of fish yield standards	Performance of the fisheries sector
Enforcing the quality of fish yield standards	Pearson Correlation	1	.890**
	Sig. (2-tailed)		.000
	N	250	250
Performance of the fisheries sector.	Pearson Correlation	.890**	1
	Sig. (2-tailed)	.000	
	N	250	250

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

Results of the correlation analysis indicates that there is a significant and positive relationship between enforcing the quality of fish yield standards and Performance of the fisheries sector, the result of correlations ( $r=0.890$ ,  $P<0.000$ ) indicates the Government carries out regular inspection of fish businesses, the fish authorities issue quality control guidelines to be followed by fishermen, regularly train fish traders upon better quality control practices, government encourages the use of improved techniques of fish handling, processing, preservation, storage, thus improved performance of the fisheries sector.

#### 4.3.8.3: Analysis of Variance (ANOVA)

The study conducted an Analysis of Variance, in order to test the effect of enforcing the quality of fish yield standards on performance of the fisheries sector in Mwena, Lutoboka and Kitobo landing sites. The findings were as shown below:

**Table 4.9: Anova**

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	132.979	1	132.979	4061.172	.001 <sup>a</sup>
	Residual	2.750	249	.033		
	Total	135.729	250			

a. Dependent Variable: enforcing the quality of fish yield standards

b. Predictors: (Constant), Performance of the fisheries sector.

The results of the findings above revealed that the level of significance was .001(a) this implies that the regression model is significant in predicting the relationship between the effect of enforcing the quality of fish yield standards and performance of the fisheries sector in Mwena, Lutoboka and Kitobo landing sites. By the help of an F-test table, the tabulated value for (F=4061.172) meaning that the model was statistically significant.

#### 4.3.8.4: Coefficients

This table shows the level of significance on the variables, it also provides the standardized and unstandardized coefficients are shown below:

**Table 4.10: Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	3213	.060		4.573	.001
	enforcing the quality of fish yield standards	1.121	.018	.890	63.727	.000

a. Dependent Variable: Performance of the fisheries sector.

From the above table 4.10, the researcher sought to establish the effect of enforcing the quality of fish yield standards on performance of the fisheries sector in Mwena, Kitobo and Lutoboka landing sites. From the above regression model holding all the other factors constant, performance of the fisheries sector is measured by the efficiency and effective implementation of quality of fish yield standards. The result of the regression model shows that there is a positive relationship between the effect of enforcing the quality of fish yield standards and performance of the fisheries sector in Mwena, Kitobo and Lutoboka. This implies that a single unit increase in any of the independent variables results into a corresponding increase in fish yield standards.

**4.4: THE EFFECT OF COMMUNITY INVOLVEMENT IN FISHERIES MANAGEMENT ON PERFORMANCE OF THE FISHERIES SECTOR IN THE SELECTED SITES IN KALANGALA DISTRICT.**

This is the second objective of the study which sought to establish whether community involvement in fisheries management had any statistically significant effect on performance of the fisheries sector in selected landing sites in Kalangala district. The researcher formulated questions that required respondents to indicate the extent to which they agreed or disagreed with various aspects about the second objective.

**4.4.1: Seeks for input of the local community members in management of the fisheries sector on this landing site.**

When respondents were asked whether the Government regularly seeks for input of the local community members in management of the fisheries sector on this landing site and their responses were as presented in table 4.11.

**Table 4.11: Seeks for input of the local community members in management of the fisheries sector on this landing site.**

	Frequency	Percent	Cumulative Percent
Strongly Disagree	36	14.4	14.4
Disagree	35	14.0	28.4
Valid Agree	49	19.6	48.0
Strongly Agree	130	52.0	100.0
Total	250	100.0	

Source: Primary Data, 2018

Table 4.11 above presents that 179(71.6%) of the respondents generally agreed that the Government regularly seeks for input of the local community members in management of the fisheries sector in Mwena, Lutoboka and Kitobo landing sites. The government has privatized fisheries sector which has encouraged the locals to manage the sector. Though 71(28.4%) of the respondents disagreed. This is an implication that there were still few local members in the management fishing in the selected sites.

**4.4.2: Appointed local community members to carry out regular monitoring of the fishermen to ensure performance as expected.**

Respondents were asked whether the appointed local community member carry out regular monitoring of the fishermen to ensure performance as expected. Their responses were as presented in Table 4.12.

**Table 4.12: Appointed local community members carry out regular monitoring of the fishermen.**

	Frequency	Percent	Cumulative Percent
Strongly Disagree	44	17.6	17.6
Disagree	32	12.8	30.4
Not Sure	15	6.0	36.4
Agree	85	34.0	70.4
Strongly Agree	74	29.6	100.0
Total	250	100.0	

Source: Primary Data, 2018

According to findings in Table 4.12 above, the majority 139(63.6%) of the respondents were in agreement that the appointed local community member carry out regular monitoring of the fishermen to ensure performance as expected. This implies that local community members inspect and evaluate activities carried by their fellow fishermen; this has boosted the quality of fish product, thus effective fisheries management in Kitobo, Mwena and Lutoboka landing sites. Though, 15(6%) were not sure and 76(30.4%) of the respondents were in disagreement. This indicates that even though appointed local community members to carryout regular monitoring of fisheries sector management, it was found out that these members are unskilled, unqualified and unequipped with equipments that can help them to carry out their activities.

#### 4.4.3. Involvement in formulation of policies and laws regarding performance of fishing sector.

Respondents were asked whether local community members are involved in formulation of policies and laws regarding performance of fishing sector, their responses were as reflected in Table 4.13.

**Table 4.13: Involvement in formulation of policies and laws regarding performance of fishing sector.**

	Frequency	Percent	Cumulative Percent
Valid Strongly Disagree	53	21.2	21.2
Disagree	88	35.2	56.4
Not Sure	22	8.8	65.2
Agree	48	19.2	84.4
Strongly Agree	39	15.6	100.0
Total	250	100.0	

Source: Primary Data, 2018

According to findings in Table 4.13 above, 141(56.4%) of the respondents were in disagreement that local community members are involved in formulation of policies and laws regarding performance of fishing sector. This implies that local community members are involved in the implementation because they provide guidance which may be used where appropriate in the formulation and implementation of fisheries agreements and other legal instrument and they also facilitate, promote technical, financial and other cooperation in conservation of fisheries resources and fisheries management and development. However, 22(8.8%) were not sure on the statement and 87(34.8%) of the respondents were in agreement, this indicates that the government involve some intelligent and intellectual local members in implementing fisheries policies and regulation governing fishery business in Kalangala District.



**4.4.4: Involvement of local community members in enforcing laws and regulations governing the fisheries sector.**

When respondents were asked whether local community member are involved in enforcing laws and regulations governing the fisheries sector, their responses were as summarised in table 4.14.

**Table 4.14: Involvement of local community members in enforcing laws and regulations governing the fisheries sector.**

	Frequency	Percent	Cumulative Percent
Valid Strongly Disagree	39	15.6	15.6
Disagree	37	14.8	30.4
Not Sure	28	11.2	41.6
Agree	40	16.0	57.6
Strongly Agree	106	42.4	100.0
Total	250	100.0	

Source: Primary Data, 2018

According to findings in Table 4.14 above, the majority 146(56.4%) of the respondents were in agreement that local community member are involved in enforcing laws and regulations governing the fisheries sector. This implies that these local members serve as an instrument of reference to help these landing sites to establish or to improve the legal and institutional framework required for the exercise of responsible fisheries and in the formulation and implementation of appropriate measures and they also provide standards of conduct for all persons involved in the fisheries sector. However, 28(11.2%) were not sure and 76(30.4%) of the respondents were in disagreement. This indicates that not all local community members who interested in enforcing laws and regulations were involved in the process.

#### 4.4.5: Local Community members are also involved in registration of fishing vessels

Respondents were asked whether the local community members are also involved in registration of fishing vessels, their responses were as presented in Table 4.15.

**Table 4.15: Local Community members are also involved in registration of fishing vessels**

	Frequency	Percent	Cumulative Percent
Valid Strongly Disagree	48	19.2	19.2
Disagree	109	43.6	62.8
Not Sure	16	6.4	69.2
Agree	50	20.0	89.2
Strongly Agree	27	10.8	100.0
Total	250	100.0	

Source: Primary Data, 2018

Result of findings in Table 4.15 above indicate that 157(62.8%) of the respondents generally disagreed that local community members are also involved in registration of fishing vessels. This implies that the officers who register vessels are appointed by government fisheries authorities and are not local members of Kitobo, Mwena and Lutoboka landings sites. However, 16(6.4%) were not sure whether local community members are involved in registration of fishing vessels or not and 77(30.8%) of the respondents agreed. This implies that there were few local members who work with fisheries authorities and given tasks of registering vessels land on sites.

**4.4.6: The appointed local community members are adequately facilitated and empowered to carry out their duties.**

Respondents were asked whether the appointed local community members are adequately facilitated and empowered to carry out their duties. Their responses were as presented in Table 4.16.

**Table 4.16: The appointed local community members are adequately facilitated and empowered to carry out their duties.**

	Frequency	Percent	Cumulative Percent
Valid Strongly Disagree	44	17.6	17.6
Disagree	30	12.0	29.6
Not Sure	12	4.8	34.4
Agree	54	21.6	56.0
Strongly Agree	110	44.0	100.0
Total	250	100.0	

Source: Primary Data, 2018

Findings in Table 4.16 above present that 164(65.6%) of the respondents generally agreed that the appointed local community members are adequately facilitated and empowered to carry out their duties. This implies that these local members promote the trade of fish and fishery products in conformity with relevant rules and avoid the use of measures that constitute hidden barriers to such trade. However, 12(4.8%) were not sure on the statement and 74(29.6%) of the respondents were in disagreement. In an interview held with fisheries authorities and local community members, they argued that local members establish facilitate and promote technical, financial and other cooperation in conservation of fisheries resources and fisheries management and development.

#### 4.4.7: Testing Hypothesis 2

The hypothesis tested the objective two of the study to ensure whether the community involvement in fisheries sector in selected landing sites in Kalangala District. This hypothesis has been tested using various techniques such as model summary, correlations, Analysis of variance (Anova), and coefficients as shown below.

##### 4.4.7.1: Model Summary

The hypothesis was tested and reflected in the model summary table below.

**Table 4.17: Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.895 <sup>a</sup>	.801	.799	.14065

a. Predictors: (Constant), Community Involvement in Fisheries Management

Variation analysis indicates that R square of 0.801 or 80.1% indicates that the government seeks for input of the local community in management of the fisheries sector, the appointed local community members carry out regular monitoring of the fishermen to ensure fish quality products, and some local community members are involved in formulation of policies and laws governing fishing sector in Lutoboka, Kitobo and Mwena Landings Sites. The observed value of 78.5% is quite big; indicating that the linear regression model is significant. The results thus show that there is effect of community involvement in fisheries management and performance of fisheries sector in Lutoboka, Kitobo and Mwena Landings Sites, Kalangala district.

#### 4.4.7.2: Correlations

Results of the correlation analysis in Table 4.18 below indicates that there is a significant and positive relationship between community involvement in fisheries management and performance of the fisheries sector in the three landing sites, the result of ( $r=0.895$ ,  $P<0.000$ ) indicates that the Government of Uganda through fisheries authorities regularly seeks for input of the local community members in management of the fisheries sector in Mwena, Kitobo and Lutoboka landing sites found in Kalangala district .This indicates that proper involvement of community members improve fisheries management, hence improved performance of fisheries sector.

**Table 4.18: Correlations between community involvement in fisheries management and performance of fisheries sector.**

		Community involvement in fisheries management	Performance of the fisheries sector.
Community involvement in fisheries management	Pearson Correlation	1	.895**
	Sig. (2-tailed)		.000
	N	250	250
	Sig. (2-tailed)	.000	.000
Performance of the fisheries sector.	Pearson Correlation	.895**	1
	Sig. (2-tailed)	.000	
	N	250	250

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

#### 4.4.7.3: Analysis of variance (ANOVA)

The analysis-of-variance (ANOVA) Table 4.19 below was used to test the equivalent positive hypothesis, the  $F= 2033.559$ ,  $p<0.005$ , this result indicates that the significant linear relationship community involvement in fisheries management and performance of fisheries sector in the three landing sites. The results indicate that the government seeks for input of the local community members in management of the fisheries sector and local members are also involved in formulation of policies and laws regarding of the fisheries sector, they are also involved in enforcing laws and regulations governing the fisheries sector in Mwena, Lutoboka and Kitobo Landing Sites.

**Table 4.19: ANOVA<sup>a</sup>**

Model	Sum of Squares	Df	Mean Square	F	Sig.
1 Regression	133.015	1	66.507	2033.559	.005 <sup>b</sup>
Residual	2.715	249	.033		
Total	135.729	250			

a. Dependent Variable: Performance of the fisheries sector

b. Predictors: (Constant), community member involvement in fisheries management

#### 4.4.7.4: Coefficients

This table shows the level of significance on the variables, it also provides the standardized and unstandardized coefficients as shown in Table 4.20:

**Table 4.20: Coefficients<sup>a</sup>**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	332	.062		4.726	.001
1 Community involvement in fisheries management	1.121	.018	.895	3.963	.005

a. Dependent Variable: Performance of the fisheries sector.

From the coefficients table 4.20 below, performance of the fisheries sector was used as the dependent variable and community involvement in fisheries management as independent variables. Regression analysis indicated that community involvement in fisheries management ( $\beta=0.895$ ,  $t=3.963$ ,  $P<0.005$ ) these means that the appointed local community members carry out regular monitoring of the fishermen to ensure fish quality products, involve in formulation of policies and laws governing fishing sector and some even are appointed to be fish quality inspectors. The result indicates that there is positive effect of community involvement in fisheries management and performance of fisheries sector in Lutoboka, Kitobo and Mwena Landings Sites, Kalangala district.

**4.5: THE EFFECT OF SUSTAINABLE MANAGEMENT AND DEVELOPMENT ON PERFORMANCE OF THE FISHERIES SECTOR IN SELECTED LANDING SITES IN KALANGALA DISTRICT.**

This section presents analysis and interpretation of findings on third objective of the study on the effect of sustainable management and development on performance of the fisheries sector in selected landing sites in Kalangala District.

**4.5.1: Commitment to enforce sustainable management and development of the fisheries sub sector.**

On the question whether Government is committed to enforce sustainable management and development of the fisheries sector on the selected landing sites, their responses were as indicated in table 4.21.

**Table 4.21: Commitment to enforce sustainable management and development of the fisheries sub sector.**

	Frequency	Percent	Cumulative Percent
Strongly Disagree	21	8.4	8.4
Disagree	39	15.6	24.0
Not Sure	15	6.0	30.0
Agree	78	31.2	61.2
Strongly Agree	97	38.8	100.0
Total	250	100.0	

Source: Primary Data, 2018

Findings in Table 4.21 above indicate that 175(70%) of the respondents generally agreed that Government is committed to enforce sustainable management and development of the fisheries sector in these selected landing sites. This is a clear implication that the government registers all fishing vessels; fights against illegal trade and catch of immature fish, implementing laws and regulations governing fisheries sectors, among others. However, 15(6%) were not sure and 60(24%) disagreed. This reveals that there are a lot of issues affecting fisheries sector and never answered by the authorities, these include over taxation, merciless acts of fisheries officials, fines, among others.



#### 4.5.2: Regular monitoring of fishermen to guard against overfishing

When respondents were asked whether the Government carries out regular monitoring of fishermen to guard against overfishing, their responses 4.22.

**Table 4.22: Regular monitoring of fishermen to guard against overfishing**

	Frequency	Percent	Cumulative Percent
Valid	Strongly Disagree	23	9.2
	Disagree	37	14.8
	Not Sure	18	7.2
	Agree	62	24.8
	Strongly Agree	110	44.0
	Total	250	100.0

Source: Primary Data, 2018

Result of findings in Table 4.22 above reveal that 172(68.8%) of the respondents generally agreed that the Government carries out regular monitoring of fishermen to guard against overfishing. This implies that there is an adequate monitoring and supervisory mechanisms put in place to guarantee controlled fishing activities, continuous system of fish quality and safety assurance; adequate arbitration of fisheries conflicts and disputes, among others. It was also found out that 18(7.2%) were not sure and 60(24%) of the respondents were in disagreement. This implies that there is limited information collection, dissemination and use, hence inadequate community awareness among the fishing communities and other stakeholders and lack of collaborative management leading to poor coordination of activities in Mwena, Kitobo and Lutoboka Landing Sites in Kalangala District.

**4.5.3: All traders in the fishing business on this landing site are required to hold commercial licenses.**

Respondents were asked whether all traders in the fishing business on this landing site are required to hold commercial licenses. Their responses were as summarised in table 4.23 below.

**Table 4.23: All traders in the fishing business on this landing site are required to hold commercial licenses.**

	Frequency	Percent	Cumulative Percent
Strongly Disagree	37	14.8	14.8
Disagree	22	8.8	23.6
Not Sure	25	10.0	33.6
Agree	65	26.0	59.6
Strongly Agree	101	40.4	100.0
Total	250	100.0	

Source: Primary Data, 2018

Result of findings in table 4.23 above indicate that 166(66.4%) of the respondents were in agreement that all traders in the fishing business on this landing site are required to hold commercial licenses. This implies that the majority of fish traders are permitted by fisheries authorities to run their businesses in the selected landings sites. This has boosted the quality of fish products, decreased crimes, improved storage and transportation of fish, among others. Though 25(10%) were not sure whether they all pay licenses or not and 59(23.6%) of the respondents were in disagreement. This means that not all fish traders in Mwena, Kitobo and Lutoboka landing sites have commercial licenses; this has increased illegal practices of catching and trading fish, among others.

#### 4.5.4: Setting of maximum amount of fishermen is expected to catch from the lake

Respondents were asked whether the Government also sets a maximum amount of fishermen are expected to catch from the lake and their responses were as summarised in table 4.24.

**Table 4.24: Setting of maximum amount of fishermen is expected to catch from the lake**

	Frequency	Percent	Cumulative Percent
Valid Strongly Disagree	103	41.2	41.2
Disagree	41	16.4	57.6
Not Sure	15	6.0	63.6
Agree	45	18.0	81.6
Strongly Agree	46	18.4	100.0
Total	250	100.0	

Source: Primary Data, 2018

Findings in table 4.24 above indicate that the majority 103(57.6%) of the respondents disagreed that the Government also sets a maximum amount of fish, fishermen are expected to catch from the lake. This indicates that the government has not implemented a law on a number of fish to be caught. However, 91(36.4%) of the respondents agreed, they elaborated that even though the Government has not issued the maximum number of fish to be caught, but they issued legal gauges or sizes of nets that should be used in catching fish and various methods to prevent illegal fishing, thus improve performance of fisheries sector.

#### 4.5.5: Regular awareness or campaigns to ensure sustainable fishing practices

On the question whether the Government carries out regular awareness or campaigns to ensure sustainable fishing practices, their responses were as depicted in Table 4.25.

**Table 4.25: Regular awareness or campaigns to ensure sustainable fishing practices**

	Frequency	Percent	Cumulative Percent
Valid Strongly Disagree	33	13.2	13.2
Disagree	32	12.8	26.0
Not Sure	26	10.4	37.4
Agree	103	41.2	78.6
Strongly Agree	56	22.4	100.0
Total	250	100.0	

Source: Primary Data, 2018

Result of findings in Table 4.25 above present that the majority 159(63.6%) of the respondents generally agreed that the Government carries out regular awareness or campaigns to ensure sustainable fishing practices. This reveals that the Government through its fisheries authorities has organised several campaigns in these selected sites to enable them be acquainted with the importance of good fishing and effects of illegal practices of fishing to the economy. This has helped these communities to boost the quality of fish products. Though, 26(10.4%) were not sure and 65(26%) of the respondents disagreed. This implies that even though the government has organised several campaigns to aware the population about the sustainable fishing practices, there is still occurrence of illegal practices in fishing sector in these selected landing sites of Kalangala District.

#### 4.5.6: Control of fisheries epidemics and poisoning

Respondents were asked whether the Government has made attempts to control fisheries epidemics and poisoning in these selected sites, their responses were as indicated in table 4.26.

**Table 4.26: Control of fisheries epidemics and poisoning.**

	Frequency	Percent	Cumulative Percent
Valid	Strongly Disagree	43	17.2
	Disagree	21	8.4
	Not Sure	11	4.4
	Agree	125	50.0
	Strongly Agree	50	20.0
	Total	250	100.0

Source: Primary Data, 2018

Findings in table 4.26 above indicate that 175(70%) of the respondents have similar opinion that Government has made attempts to control fisheries epidemics and poisoning in these selected sites (Mwena, Kitobo and Lutoboka) in Kalangala District. This is obvious that the Government has issued laws and regulations preserving fishermen from using poisoning due to its grievances to human being and environment (lake). Though, 11(4.4%) were not sure and 64(25.6%) of the respondents were in disagreement. This indicates that there is still presence of fisheries epidemics in these selected sites. In an interview held with some community members, they argued that URA and the Ministry of Trade are responsible for the entry of these illegal and dangerous fishing gears, fish poisoning powder into the country; they have not tightened or used their mandate to control unwanted items into the country.

### 4.5.7: Testing Hypothesis 3

The hypothesis was tested to ensure whether sustainable management and development of on performance of the fisheries sector in selected landing sites in Kalangala district. This hypothesis has been tested using various techniques such as model summary, correlations, Analysis of variance (Anova), and coefficients as shown below.

#### 4.5.7.1: Model Summary

The hypothesis was tested and reflected in the model summary below. Adjusted *R* square of 0.882 or 88.2% shows that government indeed committed to enforce sustainable management and development of the fisheries sector, the government carries out regular monitoring of fishermen to guard against over fishing; all traders in the fishing business on this landing sites are required to hold commercial fishing, among others.

**Table 4.27: Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.891(a)	.793	.792	.15951

a. Predictors: (Constant), Sustainable management and development of the fisheries sector.

#### 4.5.7.2: Correlations

Results of the correlation analysis discovered that there is a significant and positive relationship between sustainable management and development and performance of fisheries sector in Mwena, Kitobo and Lutoboka landing sites, the result of ( $r=0.891$   $P<0.005$ ) indicates that the government of Uganda carries out regular awareness to ensure sustainable fishing practices.

**Table 4.28: Correlations between sustainable management and development and Performance of fisheries sector**

		Sustainable management and development	Performance of fisheries sector
Sustainable management and development	Pearson Correlation	1	.891**
	Sig. (2-tailed)		.005
	N	250	250
Performance of fisheries sector	Pearson Correlation	.891**	1
	Sig. (2-tailed)	.005	
	N	250	250

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

#### 4.5.7.3: Coefficients

From the coefficients table 4.29 below, performance of fisheries sector was used as the dependent variable and sustainable management and development of fisheries sector as independent variables. Regression analysis indicated that sustainable management and development of fisheries sector ( $\beta=0.891$ ,  $t=67.643$ ,  $P<0.005$ ) this reveals that the government has made several attempts to control fisheries epidemics, campaign to ensure sustainable fishing practices and all traders in the fishing business on this landing sites are required to hold commercial fishing licenses.

**Table 4.29: Coefficients<sup>a</sup>**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	
	B	Std. Error	Beta			
1	(Constant)	.141	.051		2.756	.007
	Sustainable management and development	1.028	.015	.891	67.643	.000

a. Dependent Variable: Performance of the fisheries sector

#### 4.5.7.4: Analysis of Variances (ANOVA)

The analysis-of-variance (ANOVA) table 4.30 below was used to test the equivalent positive hypothesis, the  $F= 4575.587$ ,  $p<0.005$ , this result indicates that the significant linear relationship between sustainable management and development and performance of fisheries sector. The results indicate that the Government indeed committed to enforce sustainable management of fisheries sector in Mwena, Lutoboka and Kitobo landing sites in Kalangala District.

**Table 4.30: ANOVA**

Model	Sum of Squares	Df	Mean Square	F	Sig.
1 Regression	147.448	1	147.448	4575.587	.000 <sup>a</sup>
Residual	2.707	249	.032		
Total	150.155	250			

a. Predictors: (Constant), Sustainable management and development

b. Dependent Variable: Performance of fisheries sector



#### 4.6: PERFORMANCE OF THE FISHERIES SECTOR IN THE SELECTED LANDING SITES.

This section presents analysis and interpretation of findings on dependent variable of the study.

##### 4.6.1: Significant Increase in Fish Stocks Produced

Respondents were asked whether there is a significant improvement in fish stocks produced of fish produced in these selected sites. Their responses were as indicated in table 4.31.

**Table 4.31: Significant increase in fish stocks produced**

	Frequency	Percent	Cumulative Percent
Strongly Disagree	39	15.6	15.6
Disagree	43	17.2	32.8
Not Sure	16	6.4	39.2
Agree	88	35.2	74.4
Strongly Agree	64	25.6	100.0
Total	250	100.0	

Source: Primary Data, 2018

According to findings in table 4.31 above, 152(60.8%) of the respondents agreed that there is a significant improvement in fish stocks produced of fish produced in Lutoboka, Mwena and Kitobo landing sites in Kalangala district. This indicates the fish stock has increased because the government sensitizes fish traders on legal methods of fishing and techniques of fish handling, processing, preservation, transportation and marketing. Though 16(6.4%) were not sure and 82(32.8%) of the respondents were in disagreement. They reveal that due to excessive laws and regulations implemented by the government, this has forced a lot of fish traders to quit businesses thus reduction in fish stocks in these selected sites in Kalangala sites.

#### 4.6.2: Significant improvement in the quality of fish produced

When respondents whether there is a significant improvement in the quality of fish produced in these landing sites, their responses were as presented in table 4.32.

**Table 4.32: Significant improvement in the quality of fish produced**

	Frequency	Percent	Cumulative Percent
Valid			
Strongly Disagree	37	14.8	14.8
Disagree	48	19.2	34.0
Not Sure	19	7.6	41.6
Agree	84	33.6	75.2
Strongly Agree	62	24.8	100.0
Total	250	100.0	

Source: Primary Data, 2018

Result of findings in table 4.32 above, the majority 146(57.4%) of the respondents were in agreement that there is a significant improvement in the quality of fish produced in Lutoboka, Mwena and Kitobo landing sites in Kalangala district. This implies that the government has encouraged the use of improved and legal methods of fishing, handling, preservation, processing, storage, transportation and marketing, thus increased quality of fish products. However, 19(7.6%) were not sure whether the quality has increased or not and 85(34%) of the respondents disagreed. This indicates that there are still some people in fisheries business who failed to increase on the quality of fish produced. They further argued that, some people failed to comply with laws and regulations governing the fisheries sector in Kalangala district.

### 4.6.3: Sustainable Utilization of Fishing Grounds

Respondents were asked whether there is sustainable utilization of fishing grounds in Lutoboka, Mwena and Kitobo landing sites in Kalangala district. Their responses were as summarised in table 4.33.

**Table 4.33: Sustainable Utilization of Fishing Grounds**

	Frequency	Percent	Cumulative Percent
Valid			
Strongly Disagree	70	28.0	28.0
Disagree	68	27.2	55.2
Not Sure	26	10.4	65.6
Agree	56	22.4	88.0
Strongly Agree	30	12.0	100.0
Total	250	100.0	

Source: Primary Data, 2018

Findings in table 4.33 above present that 138(55.2%) of the respondents were in disagreement there is sustainable utilization of fishing grounds in Lutoboka, Mwena and Kitobo landing sites in Kalangala district. This implies that the fishing grounds in these selected are not zoned and the management system (fisheries authorities) are not perceived to be very appropriate for preventing overfishing. However, 26(10.4%) were not sure on the statement and 86(34.4%) of the respondents disagreed. This means that the government has tried to sensitize them about proper utilization of fishing grounds, but the majority paid deaf-ear to the system.

#### 4.6.4: Increased Revenue

When respondents were asked whether there is a significant increase in revenue generated from the fisheries sector on this landing site, their responses were as presented in table 4.34.

**Table 4.34: Increased Revenue**

	Frequency	Percent	Cumulative Percent
Valid Strongly Disagree	29	11.6	11.6
Disagree	30	12.0	23.6
Not Sure	17	6.8	30.4
Agree	69	27.6	58.0
Strongly Agree	105	42.0	100.0
Total	250	100.0	

Source: Primary Data, 2018

Findings in table 4.34 above indicate that 174(69.6%) of the respondents were in agreement that there is a significant increase in revenue generated from the fisheries sector on this landing site. However, 17(6.8%) were not sure and 59(23.6%) of the respondents were in disagreement. In an interview held with Mr. Jackson Baguma, the Kalangala District Fisheries Officer, predicts growth in the fisheries infrastructure following the introduction of Beach Management Units (BMUs). He explains that the BMUs are tasked with managing tax collection and issuing Movement Permits to all operators at landing sites throughout Uganda. The BMUs will charge 20 shillings per kilogram of dry fish and 10 shillings per kilo of fresh fish. Baguma says the money will be channeled back to providing market information, fishing patrols and subsidized fishing implements for local operators. The tax will also be used to provide tighter monitoring of Lake Victoria to prevent smuggling of immature fish and illegal fishing methods. Baguma predicts a 20 percent increase in revenue with the establishment of the Beach Management Units. He discloses that Kalangala district receives 80 million shillings annually in revenue from fish taxes.

#### 4.7: MULTIPLE REGRESSION ANALYSIS

The general hypothesis was tested to discern whether there is a relationship between government policies and performance of the fisheries sector in Mwena, Lutoboka and Kitobo landing sites in Kalangala district.

##### 4.7.1: General Correlations

Results of the correlation analysis in table 4.35 revealed that there is a significant and positive relationship between government policies and performance of fisheries sector in Kitobo, Mwena and Lutoboka landings sites in Kalangala district. It was discovered that, enforcing the quality of fish yield standards ( $r=0.890$ ,  $P<0.005$ ), this indicates that the government carries out regular inspection of fish businesses to ensure compliance with national quality standards, community involvement in fisheries management ( $r=0.895$ ,  $P<0.005$ ); this implies that local community members are involved in enforcing laws and regulations governing the fisheries sector, sustainable management and development ( $r=0.891$ ,  $P<0.005$ ); this indicates that the government carries out regular awareness campaigns to ensure sustainable fishing practices.

**Table 4.35: Correlations between Government Policies and Performance of the Fisheries Sector in the three selected landing sites**

		Enforcing the quality of fish yield standards	Community involvement in fisheries management	Sustainable management and development
Enforcing the quality of fish yield standards	Pearson Correlation	1	.890**	.895**
	Sig. (2-tailed)		.000	.000
	N	250	250	250
Community involvement in fisheries management	Pearson Correlation	.890**	1	.891**
	Sig. (2-tailed)	.000		.000
	N	250	250	250
Sustainable management and development	Pearson Correlation	.891**	.895**	1
	Sig. (2-tailed)	.000	.000	
	N	250	250	250

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

#### 4.7.2: Multiple Regression Model

The multiple regression model with all the three independent variables produced  $R^2 = 0.791$ ,  $F = 3164.278$ ,  $p < 0.005$ . As can be seen in table 4.36 below, enforcing the quality of fish yield standards [ $\beta = .412$ ,  $t\text{-statistic} = 2.031$ ,  $p < 0.005$ ] this reveals that the fisheries authorities encourage the use of improved techniques of fish handling, processing, preservation, storage, transportation and marketing on these selected landing sites; Community involvement in fisheries management indicates [ $\beta = .183$ ,  $t\text{-statistic} = 2.031$ ,  $p < 0.005$ ], this means that the local community members appointed are adequately facilitated and empowered to carry out their duties and sustainable management and development [ $\beta = .407$ ,  $t\text{-statistic} = 5.391$ ,  $p < 0.005$ ] indicating that all traders in the fishing business on these selected landing sites hold a commercial fishing license.

**Table 4.36: Multiple Regression Model**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	.075	.040		1.887	.063
Enforcing the quality of fish yield standards	.409	.054	.412	7.505	.000
Community involvement in fisheries management	.190	.093	.183	2.031	.000
Sustainable management and development	.398	.074	.407	5.391	.000
<b><math>R = .796^a</math>, <math>R\text{ Square} = .791</math>, <math>Adjusted\ R\ Square = .798</math>, <math>F = 3164.278</math></b>					

a. Dependent Variable: Performance of the fisheries sector

#### **4.8: Discussion of the findings**

The following is the discussion of the findings based on the three objectives that guided the study.

##### **4.8.1: Objective one: To examine the effect of enforcing the quality of fish yield standards on performance of the fisheries sector in selected landing sites in Kalangala district.**

In this objective, the researcher sought to establish whether enforcing the quality of fish yield standards has significant effect on performance of the fisheries sector in selected landing sites.

The study findings revealed that 70.4% agreed that the government carries out regular inspection of fish businesses to ensure compliance with national quality standards. This is a clear implication that the majority of people in fish business comply with Fish (Quality Assurance) Rules, 2008; 66% of the respondents accepted that the fisheries authorities on Mwena, Kitobo and Lutoboka landing sites also regularly issue quality control guidelines to be followed by fishermen; 51.2) of the respondents have similar opinions that the fisheries authorities on this landing site also regularly train the fish traders in better quality control practices; 54% of the respondents agreed that the Government encourages the use of improved techniques of fish handling, processing, preservation, storage, transportation and marketing; 58.8% of the respondents have similar opinions that there is no adequate enforcement of fisheries regulations on Mwena, Lutoboka and Kitobo Landings sites to ensure better quality fish products and 65.2% of the respondents agreed that Government appropriately punishes anyone violating quality fish yield standards at Kalangala Landing Sites.

Results of the Pearson correlation analysis indicates that there is a significant and positive relationship between enforcing the quality of fish yield standards and Performance of the fisheries sector, the result of correlations ( $r=0.790$ ,  $P<0.000$ ) indicates the Government carries

out regular inspection of fish businesses, the fish authorities issue quality control guidelines to be followed by fishermen, regularly train fish traders upon better quality control practices, government encourages the use of improved techniques of fish handling, processing, preservation, storage, thus improved performance of the fisheries sector.

**4.8.2: Objective Two: To examine the effect of community involvement in fisheries management on performance of the fisheries sector in these selected landing sites.**

In this objective, the researcher sought to establish whether community involvement in fisheries management had any statistically significant effect on performance of the fisheries sector in selected landing sites in Kalangala district.

Findings on second objective revealed that 71.6% of the respondents generally agreed that the Government regularly seeks for input of the local community members in management of the fisheries sector in Mwena, Lutoboka and Kitobo landing sites; 63.6% of the respondents agreed that the appointed local community member carry out regular monitoring of the fishermen to ensure performance as expected; 56.4% of the respondents disagreed that local community members are involved in formulation of policies and laws regarding performance of fishing sector; 56.4% of the respondents agreed that local community member are involved in enforcing laws and regulations governing the fisheries sector; 62.8% of the respondents disagreed that local community members are also involved in registration of fishing vessels. This implies that the officers who register vessels are appointed by government fisheries authorities and are not local members of these landings sites and 65.6% of the respondents agreed that the appointed local community members are adequately facilitated and empowered to carry out their duties.



Results of the correlation analysis on second objective indicates that there is a significant and positive relationship between community involvement in fisheries management and performance of the fisheries sector in the three landing sites, the result of ( $r=0.788$ ,  $P<0.000$ ) indicates that the Government of Uganda through fisheries authorities regularly seeks for input of the local community members in management of the fisheries sector in Mwena, Kitobo and Lutoboka landing sites. This indicates that proper involvement of community members improve fisheries management, hence improved performance of fisheries sector.

**4.8.3: Objective Three: To examine the effect of sustainable management and development of fisheries on performance of the fisheries sector in selected landing sites in Kalangala district.**

In this objective, the researcher sought to establish whether sustainable management and development of fisheries had any statistically significant effect on performance of the fisheries sector in selected landing sites in Kalangala district.

Study findings on third objective of the study 70% of the respondents generally agreed that Government is committed to enforce sustainable management and development of the fisheries sector in these selected landing sites. This is a clear implication that the government registers all fishing vessels; fight against illegal trade and caught of fish, implementing laws and regulations govern fisheries sectors, among others; 68.8% of the respondents generally agreed that the Government carries out regular monitoring of fishermen to guard against overfishing; 66.4% of the respondents were in agreement that all traders in the fishing business on this landing site are required to hold commercial licenses; 57.6% of the respondents disagreed that the Government also sets a maximum amount of fish, fishermen are expected to catch from the lake. This indicates that the government has not implemented a law on a number of fish to be caught;

63.6% of the respondents generally agreed that the Government carries out regular awareness or campaigns to ensure sustainable fishing practices and 70% of the respondents have similar opinion that Government has made attempts to control fisheries epidemics and poisoning in these selected sites (Mwena, Kitobo and Lutoboka) in Kalangala District.

Results of the correlation analysis discovered that there is a significant and positive relationship between Sustainable management and development and performance of fisheries sector in Mwena, Kitobo and Lutoboka landing sites, the result of ( $r=0.891$   $P<0.005$ ) indicates that the government of Uganda carries out regular awareness to ensure sustainable fishing practices.

## CHAPTER FIVE

### SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

#### 5.1: Introduction

This chapter presents discussion of the results derived from the data presented in chapter four. The discussion leads to varying conclusions and a number of recommendations that are presented later. The conclusions look at the most significant issues found out in the study while recommendations mainly focus on proposals aimed at improving performance of the Fisheries sector in Kalangala landing site.

#### 5.2: Summary of Findings

The study was undertaken to examine the effect of government policies on performance of the fisheries sector in selected landing sites in Kalangala district. Specifically, it sought to examine: the effect of enforcing quality of fish yield standards on performance of fisheries sector in selected landing sites in selected landing sites in Kalangala district, to examine the effect of community involvement in fisheries management on performance of fisheries sector in selected landing sites in Kalangala district and to examine the effect of sustainable management and development of fisheries on performance of fisheries sector in selected landing sites in Kalangala district.

A sample of 282 respondents was selected from the study population of 331 persons involving fish traders, fish processors, boat builders and repairers, fisheries officers and BMU members in selected landing sites in Kalangala district, but only 250 respondents returned filled and answered questionnaires to the researcher for analysis. These were selected using a stratified random sampling technique. The study findings were collected by use of self administered questionnaires. A correlational research design was used and data collected was analyzed using

Pearson Product Correlation Coefficient and regression analysis. The correlations revealed that all the three elements of the government policy (enforcing the quality of fish yield standards, involvement in fisheries management and sustainable management and development of the fisheries sector) had a statistically significant positive effect on performance of selected landing sites in Kalangala district.

A multiple regression analysis table 4.36 also revealed that 79.8% percent variation in performance of the fisheries sector in selected landing sites in Kalangala district could be attributed to the three elements of the government policy (enforcing the quality of fish yield standards, involvement in fisheries management and sustainable management and development of the fisheries sector). This therefore means that a significant increase and adherence to all the three elements of the government policy can significantly improve performance of selected landing sites in Kalangala district.

### **5.3. Conclusions**

The major conclusions drawn from this study are also presented in line with the specific objectives.

#### **5.3.1: Objective one: To examine the effect of enforcing the quality of fish yield standards on performance of the fisheries sector in selected landing sites in Kalangala district.**

The study concluded that the government of Uganda through fisheries authorities carries out regular inspection of fish businesses on this landing site to ensure compliance with national quality standards; the fisheries authorities on this landing site regularly issue quality control guidelines to be followed by fishermen and regularly train the fisheries traders in better quality control practices; the government also encourages the use of improved techniques of fish handling, processing, preservation, storage, transportation and marketing on this landing site.

**5.3.2: Objective Two: To examine the effect of community involvement in fisheries management on performance of the fisheries sector in selected landing sites in Kalangala district.**

The study concluded that the government regularly seeks for input of the local community members in management of the fisheries sector on this landing site; the appointed ones carry out regular monitoring of the fishermen to ensure that they perform as expected; it was also revealed that these locals are involved in formulation of policies and laws regarding performance of the sector and are involved in enforcing laws and regulations governing the fisheries sector.

**5.3.3: Objective Three: To examine the effect of sustainable management and development of fisheries on performance of the fisheries sector in selected landing sites in Kalangala district.**

Finally, the study concluded that the government is indeed committed to enforcing sustainable management and development of the fisheries sector on this landing site; the government carries out regular monitoring of fishermen to guard against over fishing; all traders in the fishing business on this landing site are required to hold commercial fishing licenses; the government also sets a maximum amount of fish businessmen are expected to catch from the lake; the government carries out regular awareness campaigns to ensure sustainable fishing practices; the government has made attempts to control fisheries epidemics and poisoning on this landing site.

#### **5.4: Recommendations**

Based on the major conclusions of this study, the researcher presents the following recommendations which may be helpful in enhancing performance of the Fisheries sector in selected landing sites in Kalangala district. These recommendations are also presented in accordance with the study objectives and reflect on policy, practices and further research.

##### **5.4.1: Objective One: To examine the effect of enforcing the quality of fish yield standards on performance of the fisheries sector in selected landing sites in Kalangala District.**

The study recommends that there is need to formulate and package policies, byelaws and regulations to guide enforcement of quality of fish yield standard. Approaches to fisheries conflicts arbitration to address these issues at local, national and international challenges must be emphasised in guiding management decisions. Institutions for enforcing quality should be established and strengthened at local, national and regional level for effective management. Further research on fisheries socio-economic and the ecosystem of Uganda's fishery should be undertaken covering in order to support effective enforcement of quality fish yield standards.

The researcher recommends that enabling and relevant policies, laws, regulations, awareness raising systems, coordination, arbitration measures and approaches aimed at sustainable management of the fisheries need to be developed with grassroots' and community participation in a bottom-up approach for ownership of the fishery. A whole package of tools need to be developed and enforced to control over fishing, irrational use of destructive gears, sanitation and hygiene, inadequate facilitation among others by the BMU/Cs. It is also very paramount to put in place mechanisms for sustainably funding BMCs' activities so as to develop and manage the fishery.

The researcher therefore recommends that if the contribution of enforcing the quality of fish yields standards towards performance of the selected landing sites in Kalangala district is to be strengthened, then the government should intensify its efforts towards reprimanding any one accused of violating quality fish yield standards to deter others from doing the same. The government should also hire more people to monitor and ensure that fishermen conform to the acceptable standards. There is need to for revision of the Fish Act, in order to legalize fully the role and function of individuals and the BMCs created for user participation, the Fish Act needs to be revised to transfer of property rights over specific resources to communities, permission to allow ploughing back part of the proceeds from fisheries generated revenue to BMC institutions to cater for their management and administrative costs and provide for the full transfer of management responsibility to BMU institutions.

**5.4.2: Objective Two: To establish the effect of community involvement in fisheries management on performance of the fisheries sector in selected landing sites in Kalangala district.**

The community involvement in fisheries management has a statistically significant positive effect on performance of the selected landing sites in Kalangala district. However, such a relationship was being weakened by some inadequacies like limited logistics and facilitations which made it difficult for the selected beach management members to effectively carry out their duties. Consequently, the government should increase its funding towards the beach management units by not only recruiting more of them but also offering them more logistical support like motor cycles to ease their movement such that they can be able to monitor all the areas. The fisheries department in Kalangala district should also organize regular community awareness campaigns where local community members can be informed of their contribution towards satisfactory performance of the fisheries sector.

**5.4.3: Objective Three: To assess the effect of sustainable management and development of fisheries on performance of the fisheries sector in selected landing sites in Kalangala district.**

The study findings revealed that sustainable management and development of fisheries has a statistically significant positive effect on performance of the selected landing sites in Kalangala district. However, such a relationship was being weakened by some inadequacies like absence of some administrative controls like trading licenses and failure to set a limit on the amount of fish businessmen are expected to catch from the lake. It is therefore suggested that the government makes it mandatory for all fishermen to acquire fishing licenses which would also specify the maximum amount of fish businessmen are expected to catch from the lake in a given period of time. This is likely to guard against cases of overfishing and at the same time facilitate sustainable utilization of the fishing grounds.

**5.5: Areas for Further Research**

Since this study was limited to some selected landing sites in Kalangala district, it is recommended that; a similar study be conducted in other landing sites in Uganda or any other part of the world. The researcher therefore proposes that future researchers conduct studies to establish the contribution of any of these other factors in order to obtain a more comprehensive understanding of the factors that affect determine of performance of the fisheries sector in Uganda.



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**APPENDICES**

**APPENDIX I: QUESTIONNAIRE**

Dear Respondent,

I am Munnawa Rogers, a student of Masters of sciences in Natural Resources Management at Nkumba University, I am conducting a study on the *Effect of government policies on performance of the fisheries sector; A case study of Kalangala Landing Site*. You have been selected to take part in this study. I would be grateful if you would assist me by responding to all items in the attached questionnaire. The information will be kept confidential and will be used for academic research purpose only. Your co-operation will be greatly appreciated. Thanks in advance.

**Section A: Background Characteristics of respondents**

*Instruction: Please fill in all parts as sincerely as possible by putting a tick on one of the options given.*

**1. a) Gender**

i) Male  ii) Female

**.b) Age of respondents**

ii) 18-30  iii) 31-40  iv) 41-50 years

v) Above 50 years

**d. Level of education**

i) Certificate  ii) Diploma  iii) Degree

iv) Masters  v) None

**e. How long have you been in the area?**

i) 0-2 years  ii) 3-5 years  iii) 6-10 years

iv) More than 10 years

**SECTION B**

For the questions below, Please tick the options that suits your level of agreement for each of the following questions. Use a scale of 1-5, where 1- Strongly disagree, 2- Disagree, 3- Not Sure, 4- Agree, 5- Strongly agree.

No.	Statement	5	4	3	2	1
<b>Objective 1:Effect of enforcing quality fish yield standard on performance of the fisheries sector in Kalangala Landing Site</b>						
1	The government carries out regular inspection of fish businesses on this landing site to ensure compliance with national quality standards.					
2	The fisheries authorities on this landing site regularly issue quality control guidelines to be followed by fishermen.					
3	The fisheries authorities on this landing site also regularly train the fisheries traders in better quality control practices.					
4	The government encourages the use of improved techniques of fish handling, processing, preservation, storage, transportation and marketing on this landing site.					
5	There is adequate enforcement of fisheries regulations on this landing site to ensure better quality fish products.					
6	I have realized that the government appropriately punishes any one accused of violating quality fish yield standards at Kalangala landing site.					

**Effect of community involvement in fisheries management on performance of the fisheries sector; A case of Kalangala Landing Site**

1	The government regularly seeks for input of the local community members in management of the fisheries sector on this landing site.					
2	The appointed local community members carry out regular monitoring of the fisher men to ensure that they perform as expected.					
3	Local community members are involved in formulation of policies and laws regarding performance of the sector.					
4	Local community members are involved in enforcing laws and regulations governing the fisheries sector.					
5	Local community members are also involved in registration of fishing vessels.					
6	The appointed local community members are adequately facilitated and empowered to carry out their duties.					

**Effect of enforcing sustainable management and development of fisheries on performance of the fisheries sector in Kalangala Landing Site**

1	I have come to realize that the government is indeed committed to enforcing sustainable management and development of the fisheries sector on this landing site.					
2	The government carries out regular monitoring of fishermen to guard against over fishing.					
3	All traders in the fishing business on this landing site are required to hold commercial fishing licenses.					
4	The government also sets a maximum amount of fish businessmen are expected to catch from the lake.					
5	The government carries out regular awareness campaigns to ensure sustainable fishing practices.					
6	The government has made attempts to control fisheries. epidemics and poisoning on this landing site					

<b>Performance of the fisheries sector in Kalangala Landing Site</b>					
1	There is a significant increase in fish stocks produced on this landing site.				
2	There is a significant improvement in the quality of fish produced on this landing site.				
3	There is sustainable utilization of fishing grounds on this landing site.				
4	There is a significant increase in the number of fish processing firms on this landing site.				
5	There is a significant increase in revenues generated from the fisheries sector on this landing site.				
6	There is a significant improvement in house hold incomes among the people engaged in the fisheries sector.				

**END**

*Thank you for your cooperation*

**APPENDIX B**  
**PLATES**



**Plate 1: The Researcher while meeting the Fisheries Officers at Kalangala District.**



**Plate 2: Fisheries Officers while on inspection at one of the selected Landing sites.**



**Plate 3: Boat making at one of the selected Landing sites.**



**Plate 4: Inspection of fishing nets by BMU Officers at one of the selected landing sites.**