

**GENDER ROLES IN FISHING LIVELIHOODS: A CASE OF LAKE
BARINGO COMMUNITY, BARINGO COUNTY-KENYA**

BY

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DECLARATION

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DEDICATION

I dedicate this work to my beloved parents, father Steven Ncungu Nguthari, and mother Eva Wahito Ncungu.

ABSTRACT

The role and contribution of the fisheries sub-sector in Kenya's fishing communities cannot be underestimated. To ensure sustainable fisheries livelihoods, the Government has developed Fisheries Beach Management Units (BMUs) regulations. The demand for fish has motivated men and women to get involved in fishing activities, which include harvesting, processing and marketing. Lack of gender-disaggregated data makes it difficult to establish whether it is the women or men who contribute to the fishing livelihoods and also it makes it hard to understand gender-based constraints that need to be addressed. The purpose of this study was to establish and assess the participation of women and men in fisheries and to determine their roles in fishing livelihood. The specific objectives of the study were to establish gender roles in fishing livelihood, to determine gender factors that influence practices in the fishing livelihood, and to investigate the coping strategies used by participants in fishing livelihood of the Lake Baringo fishing community. The study is a cross-sectional survey carried out in a field setting. The Kampi ya Samaki Beach Management Unit (BMU) was purposively selected because it has three landing sites (Kampi ya Samaki, Ngenyin and Ol'Kwoko). The BMU had prominence of landing sites for both traditional and commercial fishing activities, accessibility by fishers for their livelihood, use for other livelihood activities by the community, and active gender involvement in fishing activities. A multistage sampling procedure and purposive selection of respondents resulted to a total of nine (9) men and twelve (12) women. Data collection involved a combination of quantitative and qualitative methods that were designed to support and inform each other. Data was collected using interview schedules, topical guides, observation checklists, and an open-ended questionnaire. The data was checked for consistency and arranged thematically to enable analysis through triangulation and content analysis. The key findings of this study indicate that women and men have clear and defined roles in fishing livelihood that are not culturally but rather socially influenced, face various constraints that affect their participation in fishing activities, and they engage in alternative income generating activities as adaptive responses to reduce their vulnerability. Further, the study revealed there is insufficient knowledge in fish quality and value addition and BMU fishery policy objectives have not been implemented fully because of lack of full access and control of assets by the fishing community. The study revealed that there is need for review and rapid implementation of the BMU Policy, adoption of modern practices in fish value addition, and introduction of programmes that would ensure equitable access to financial resources by both genders. Information generated by this study is important in guiding policy makers, BMUs and the fishing communities to identify points of interventions as well as to develop effective, efficient and sustainable programs that would support the fishing communities, towards attaining Kenya Vision 2030 and sustainable development.

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ACRONYMS

ASAL	Arid and Semi-arid Lands
BMU	Beach Management Unit
CIDA	Canadian International Development Agency
DFID	Department of International Development UK
ERS	Economic Recovery Strategy
EEZ	Exclusive Economic Zone
FAO	Food and Agricultural Organization of the United Nations
FGD	Focus Group Discussion
ESP	Economic Stimulus Programme
GDP	Gross Domestic Product
GoK	Government of Kenya
IFAD	International Fund for Agricultural Development
IFC	International Finance Corporation
ILO	International Labour Organization
KES	Kenya Shillings
KIHBS	Kenya Integrated Household Budget Survey
KMFRI	Kenya Marine and Fisheries Research Institute
MDG	Millennium Development Goals
MTP I	Mid Term Projects Phase One
MTP II	Mid Term Projects Phase Two
PIP	Policies, Institutions and Processes
PRS	Poverty Reduction Strategy
SLA	Sustainable Livelihood Approach
UNDP	United Nations Development Programme

OPERATIONAL DEFINITION OF TERMS

Artisanal fishing: The term is used to describe small-scale low technology commercial or subsistence fishing practices. The term particularly applies to coastal or island ethnic groups using traditional techniques such as rod and tackle, arrows and harpoons, throw nets, dragnets and traditional fishing boats (FAO, 2008)

Bola: Round earth built kiln used for smoking lungfish and catfish.

Commercial fishing methods: Fishing for commercial purposes

Fisher: This refers to an individual, either man or woman, who is authorized to fish and takes part in fishing conducted from a fishing vessel, platform whether fixed or floating or from the shore (GoK, 2007).

Fisheries: This term refers to all fishing activities, which include the management, catching, processing, and marketing of fish and other aquatic food resources (GoK, 2007).

Fishing Community: a group of persons living together in a locality and who derive their livelihood directly from fishing activities (GoK, 2007).

Fishing livelihood: The term is used in this study to refer to fishing activities- harvesting, processing, and marketing, that contribute to an individual's income.

Gender: This refers to the social attributes and opportunities associated with being male or female and the relationships between women and men and girls and boys, as well as the relations between women and those between men. These attributes, opportunities, and relationships are socially constructed and are learned through socialization processes. (United Nations, 2010)

Gender roles: Gender roles refer to the socially determined and accepted roles played by women and men. These different roles consist of historical, religious, economic, cultural, and ethnic factors and change over time (Abbolt, 2001).

Livelihood: A livelihood comprises the assets - natural, physical, human, financial and social capital, the activities, and the access to these - mediated by institutions; and social relations, that together determine the living gained by the individual or household (DFID, 1998; Allison, 2001).

Participation: The term is used in this study to refer to access of equal opportunity to certain occupations whereby men and women progress at the same rate.

Sustainable livelihoods: This refers to having an improved standard of living and reduced vulnerability, while maintaining the natural resources (Thirlwall, 2006).

Traditional fishing methods: It involves fishing, using traditionally made fishing canoes for household consumption.

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CHAPTER ONE

INTRODUCTION

1.1 Background Information

The demand for fish worldwide has increased in the past several years due to the favourable health attributes associated with the consumption of fish. This has put a lot of pressure on world fish stocks with some varieties like the Cod of the Atlantic Ocean being totally decimated (FAO, 2010b). Such extinctions have created the need for prudent management practices in the fisheries sector, through the cooperation of various interest groups, each having well-defined roles (FAO, 2006).

Kenya's fishery resources comprise both marine and inland fisheries resources. The marine fisheries resource area straddles the Indian Ocean and stretches 640 Kms from Kiunga in the north to Vanga in the south, with an additional 350 Kms of exploitable water mass, 200 Kms of which are within Kenya's Exclusive Economic Zone (EEZ) (Kariuki, 2005). The inland fisheries resource is derived from the lakes, rivers and dams. Notable lakes are Naivasha, Challa, Jipe, Turkana, Baringo and Victoria. Among the rivers the notable ones include Nzoia, Tana and Athi while the dams include Masinga and Kiambere (GoK, 2013).

The fisheries sector in Kenya plays an important role in the national economy, contributing 0.5% to the Gross Domestic Product in the year 2006 (GoK, 2006). This figure could have been higher had value additions at the various stages been considered and post-harvest losses minimized (GoK, 2006). As an economic activity, the industry is of importance to fishing communities and in particular, fish traders, fish processors, and fish farmers. The Ministry of Fisheries and Livestock indicates that in Kenya, the Fisheries Sector supports about 80,000 Kenyans directly and about 800,000 indirectly, assuming a dependency ratio of 1:10 (GoK, 2013). At the same time, fish

farming through the Economic Stimulus Aquaculture Fish Programme has created direct employment for over 150,000 fish farmers, short-term employment to over 1.5 million youths and indirect employment to over 500,000 other Kenyans (GoK, 2013). According to Kariuki (2011) in 2006, the country produced a total of 156,776 metric tons of fish valued at KES 8.7 Billion. In the same year, fish exports earned the country approximately KES 5 Billion (Kariuki, 2011). Studies by Kariuki (2011) and FAO (2000; 2004) indicate that Kenya's fisheries have the potential for bigger contribution to national development. However, the growth of the industry has faced many challenges that include weak policies on sustainable natural resource management, poor access to markets, low productivity, weak institutional capacity and weak monitoring and evaluation framework among others. These challenges are surmountable if deliberate efforts are directed to addressing issues affecting fisheries activities (Mathew, 2005).

According to FAO (2007a) and Neiland (2006), fisheries and aquaculture can make an important contribution to poverty alleviation, food security, and social well-being. Kenya has made aquaculture one of the flagship programs under Vision 2030. It is expected to contribute to: food security, enhanced nutrition and health benefits, employment creation, alternative livelihood, improved standard of living, and increased per capita fish consumption (GoK, 2013). The shortage of fish production information notwithstanding, it is apparent that the fishing industry in Kenya can develop into a viable enterprise, capable of supporting enormous economic activities and increasing the fisheries resource base (DFID, 2002a; 2004a; FAO, 2007b).

Fishery resources in Kenya are managed by the Department of Fisheries through the Fisheries Act (Cap 378) and Maritime Act (Cap 250) of the Laws of Kenya (GoK, 2007). However, fishing communities operated without comprehensive regulations for

sustainable fishery resources between 1964 and 2005, leading the Government and development partners to work with the fishing communities in order to establish grassroots Beach Management Units (BMUs) that were to spearhead the sustainable development and management of fisheries (FAO, 2007b; GoK, 2005). This process aimed at giving the BMUs legal identity to empower the communities in natural resource-based livelihoods and resource management (FAO, 2007a; GoK, 2005; Omwega & Norgbey, 2004). The pastoral community around Lake Baringo historically depended on livestock and subsistence crop production for food security (Omwega & Norgbey, 2004). However, since the introduction of fish in the lake in the 1970s, the community has learned to appreciate fish as a source of food security. This has seen men and women getting involved in fishing activities, which include harvesting, processing, marketing, and other fish related activities such as net repairs, boat building and repairs.

The inland fisheries industry in Kenya has been experiencing declining production levels due to climatic changes that have seen lakes becoming shallower because of increased siltation, and lower water levels of rivers feeding the lakes due to deforestation (Ogutu-Othwayo & Balirwa, 2006; Omwega & Norgbey, 2004). The situation is compounded by the over-exploitation of fish species, resulting in a steady decline of fish catch in Lake Baringo (Ogutu-Othwayo & Balirwa, 2006). This situation led to the closing of fishing activities in the lake between 2002 and 2004 for fish-stocks to regenerate. This measure did not bear any tangible results as fish landings in 2004 and 2005 were 63 and 43 tons, respectively, down from 468 tons in 2000 and 117 tons in 2001. Lake Baringo Annual Fisheries Report of 1998 shows that the lake initially supported an average of 134 fishermen, 66 fishing canoes, and 300

fish handlers. Strangely, by 2001, these numbers had declined to 75 fishermen and 25 canoes (FAO, 2007b).

The handling, processing, and marketing of fish products are essentially complementary functions of all food production systems. Women have traditionally played key roles in these activities. In most developing countries, women dominate the marketing activities either as buyers or as sellers of food (Overa, 2000). For most women, marketing is an important activity that provides the only source of cash income. Women in general, are a powerful force for growth and development, contributing to the economy as workers; entrepreneurs, and welfare providers to their families. However, unequal access to property rights, discrimination in the labour market, and business-related obstacles prevent women from actively contributing to their countries' growth and well-being (International Labour Organization (ILO), 2003). Removing these obstacles not only empowers women, but also unlocks their full economic potential (Abila *et-al*, 2000; Ellis, Kutengule & Nyasulu, 2003).

According to Rathgeber (2003), women's participation in natural resource-based is important, but hardly ever valued equally with men's contribution. Women have over time, assumed a leading role in the rapid growth of fisheries. While large boats used for offshore fishing have male crews, women have been found to manage small boats and canoes (FAO, 2004). Many women engage in fishing with basic equipment, occasionally wading along the shallow shores (Chando, 2002). In artisanal fishing communities, women are mainly responsible for performing the skillful and time-consuming tasks that take place on-shore, such as net making and mending, processing and marketing the catch (Aryee & Ahee-Amanquanor, 2001).

While the above information shows evidence of people involved in the fishery industry, it does not explicitly give gender-disaggregated data on labour supply and the roles performed by both women and men at Lake Baringo fishing community.

1.2 Statement of the Problem

In Kenya, the fisheries sector has been struggling to acknowledge the full relevance of gender relations, and its influence on fisheries and aquaculture. The participation of women and men in fishing activities has been spurred by cultural, social, economic, and political factors. However, in most cases, women are excluded from decision-making mechanisms in the management of fisheries and documentation of women's contributions to fisheries sector remains isolated, rarely appearing in the official Kenya Integrated Household Budget Surveys.

The need for gender equity into natural resource management and livelihood development is being recognized as an important fisheries intervention. Through affirmative action, the Government intends to ensure that the marginalized groups such as the youth and women have a reasonable access to water resource, infrastructure and opportunity for economic fields and employment. All these are being realized through implementation of the Constitution of Kenya 2010, Millennium Developing Goals (MDGs), and the Vision 2030's and its Medium Term Projects (MTPs).

If there was gender equity in key decision making of natural resource management then it is likely to identify the role of woman in the fishery sector. However, women are marginalized in the fishery industry and their involvement in management and policymaking processes is limited to a small scale. This unclear position about gender roles, performance, and participation in fish production raises questions whether there are any major factors that influence gender relations in fishing livelihood. Lack of

gender-disaggregated data makes it difficult to establish whether it is the women or the men who contribute more to fishing livelihood.

1.3 Purpose of the Study

The purpose of the study was to determine the participation of women and men, their roles in the fishing livelihoods of Lake Baringo fishing community.

1.4 Objective of the Study

1.4.1 General Objective

The general objective of the study was to establish and assess the participation of women and men in fisheries and to determine their roles in fishing livelihood of Lake Baringo fishing community.

1.4.2 Specific Objectives

To meet its main objective this research sought to meet the following specific objectives:-

- i. To assess gender roles in fishing livelihood of the Lake Baringo community.
- ii. To determine gender factors that influence practices in the fishing livelihood of the Lake Baringo community .
- iii. To identify the coping strategies used by women and men in fishing livelihood of the Lake Baringo community .

1.5 Research Questions

- i. What are the gender roles in fishing livelihood of the Lake Baringo community?
- ii. What are the gender factors influencing participation of women and men the in fishing livelihood ?

iii. What coping strategies do women and men adapt to in fishing livelihood ?

1.6 Significance of the Study

The unclear position about gender roles, performance, and participation resulting from lack of gender-disaggregated data, made it difficult to establish whether it was the women or the men who were significant in fishing livelihoods, or to understand whether as producers they faced gender-based constraints that needed to be addressed. This raised questions whether there were any major factors that influenced gender relations in fishing livelihood. This study specifically focused on the livelihoods of the fishing community of Lake Baringo. Information generated by this study will help fill the research gap on gender and fishing livelihood in Kenya, while generating deeper enquiries into this field. It is expected that these findings will be useful to academics, researchers, policy makers, and practitioners in fisheries and fishing livelihood development.

1.7 Scope of the Study

The study was conducted in three BMU landing beaches namely Kampi Samaki, Ngenyin, and Ol'Kokwo, which are located on the shores of Lake Baringo. Specifically, the study addressed roles of men and women, factors that influenced men and women participation in fishing livelihood, and outcomes of livelihood activities. Using qualitative and quantitative approaches, emphasis was placed on how gender roles and practices influence women and men's participation in the fisheries environment.

1.8 Limitations of the study

The study faced limitations in both methodology and implementation. The use of focus group discussions and participant observations as data collection methods limited

sampling accuracy while resulting in difficulty in quantification of the resultant data. Similarly, non-willingness of certain potential respondents to participate in the research also affected the sampling, while the use of a translator to collect data from some of the respondents also limited the verifiability of the data collected in the course of the study.

1.9 Theoretical Framework

To analyse gender roles in fishing livelihood, the theoretical framework that guided this study was Gender and Development Approach (GAD). This section reviews three concepts gender roles and division of labour, gender relation, gender access and control of resources.

1.9.1 Gender and Development Approach

The Gender and Development (GAD) approach focuses not only on women, but also on the social relations between men and women in their work places, as well as in other settings (Momsen, 2009). The GAD approach takes a holistic approach and treats development as a complex process influenced by political and socio-economic forces. The social structure and cultural contexts in the GAD approach provides information base on understanding male-female relations and interactions (Ostegaard, 1992). The GAD as a model sharpens and extends our knowledge of women's issues in settings such as businesses, households, and communities.

In this study, GAD approach was used to understand the influence of gender roles and relations in fishing livelihood. Gender roles are complementary as much as conflicting (Harrison, 2000). It is therefore important to understand the relationships between women and men in carrying out fishing livelihood at Lake Baringo.

1.9.2 Gender Roles and Relation in Livelihood Concept

The analysis of gender in a livelihoods context recommends that different tasks are divided along the lines of socially created gender roles (Fuwa, 2004). Gender roles are often conditioned by household structure, access to resources, as well as locally relevant factors including ecological conditions (FAO, 2011). Gender roles, besides being socially created, are learned, dynamic, multi-faceted, and influenced by class, age, ethnicity and religious practice (FAO, 2001).

Gender relations refer to the ways in which a society defines rights, responsibilities, and the identities of men and women in relation to one another (FAO, 2011). A focus on gender relations aids in understanding why roles take the forms they do, and help to define gender in relational terms as the power relations between women and men or between femininity and masculinity (Gregson *et al.*, 1997). An important component of gender relations and gender theory is the concepts of bargaining power (Agarwal, 2001).

Bargaining interactions between men and women contain elements of both cooperation and conflict where the outcome depends on the bargaining power of each party (Agarwal, 2001). Likewise, “...*livelihoods and well-being are increasingly conceptualized as partly the outcome of negotiations and bargaining between individuals with unequal power within households*” (Murray, 2002 pp495). Understanding the factors of bargaining power can create an understanding of individual power and control over particular resources and different asset categories.

Valdiva and Gilles (2001) argue that different assets, and forms of capital, crucial to livelihood and survival strategies, are clearly gendered. The five asset categories outlined in the livelihoods approach; human, natural, financial, social,

and physical capital are obtained through time and resources invested by individual members. One's power to obtain each form of capital depends on the power of negotiation and gender relations within livelihood activities and household (Valdivia and Gilles, 2001). In most parts of the world, men retain greater access to each form of capital, particularly natural, financial and physical forms of capital. This allows men to increase their ability to diversify their livelihood and increase their bargaining power at the individual and household, and community level (Ellis, 2000a). According to Valdivia and Gilles (2001) women's roles are defined as productive and reproductive activities, where time is invested directly in the production of goods destined to increase household wellbeing, play an important role in improving their livelihood outcomes in terms of human (nutrition and education), social (strengthening social relations) and cultural capital.

In order to understand the gender roles and relations in the fishing community of Lake Baringo, gender analysis as a research tool was used to assess social roles and relations explicit; to make clear how men and women are defined in a given context and their normative roles, duties and responsibilities (Meijerink et al., 2001). FAO (2001) defines gender analysis as *...the study of the different roles of women and men to understand what they do, what resources they have, and what their needs and priorities are*". Therefore, in this study gender analysis was used to understanding what it is that men and women do for their livelihood activities, what resources they have access and control over, and how activities, access and control shape structural factors (Carney, 2002).

1.10 Conceptual Framework

Sustainable Livelihoods Approach (SLA) Framework (Figure I) by Department for International Development (DFID) (1998) was used for this study. It is a cross-

thematic approach that was identified in early 1990 has to eradicate poverty; based on the energies and talents of the poor people, thus encouraging activities that are pro-poor. It aims to promote development that is sustainable not just ecologically, but also institutionally, socially and economically and to produce positive livelihood outcomes. SLA is considered the most useful tool for livelihood analysis especially in natural resources. To understand the livelihoods of the fishing community in Lake Baringo, the researcher used the Sustainable Livelihood Framework (SLF) approaches to analysis factors affecting peoples fishing livelihoods. These livelihood approaches in the framework were:

- i. Livelihood outcomes they achieve or desire to have.
- ii. The context in which they live and vulnerability factors and affecting the fishing livelihood of men and women.
- iii. Their access to social, human, physical, financial and natural capital or assets, and their ability to put these to productive use.
- iv. Policies, Institutions and Processes (PIP) that provided an enabling environment for fisher workers to participate in fishing livelihood.
- v. The different livelihood strategies they adopt by using assets and coping mechanism in pursuit of their priority.

In this study, the SLF was used to investigate the livelihood activities and their relationship with gender roles in fishing livelihood of the Lake Baringo fishing community.

1.10.1 Vulnerability Context

The vulnerability context involves factors operating in the external environment in which people exist, and which may affect their exposure to poverty. The livelihoods that people adopt, and the livelihood outcomes they desire to achieve, are greatly

affected by the vulnerability context (DFID, 2004). This study assess two key areas that broadly summarize the factors contributing to the vulnerability context are shocks and stress. According to Ellis (2000b), the vulnerability context has a direct impact on the lives of artisanal fish workers. Some elements of the vulnerability context are outside of the control of governments and fish workers influence such as seasonal availability of fish, declining fish resources and conflict between groups of fish workers (Allison & Mvula, 2002).

1.10.2 Livelihoods Assets

Allison and Mvula (2002) argue that there are five types of capital assets namely human, social, natural, physical, and financial. Human capital represents the skills, knowledge, and ability to work within a given environment, and is either direct or indirect. Social capital represents the networks and relationships existing in communities and groups, and which people make use of in their livelihoods. Some of these are very informal such as trading linkages, for example, when fishermen link up with fish traders in other countries to sell their fish. Others might be more formal such as, fish processing would belong to a processor's group. Social capital can also facilitate business by establishing trust relationships, which can be depended upon, thus reducing risk. Some relationships might also help people in the artisanal fisheries to play a stronger role in guiding policy for the sector. It is advantageous to build on those relationships that already exist for activities like resource management or improved trading. Physical capital represents the infrastructure and tools or equipment used to support livelihoods. Of direct importance to artisanal fishing communities and groups include infrastructure such as harbors and fish landing areas, gear stores, smoking kilns, and ice plants. Financial capital represents the financial resources that people use to achieve their livelihood strategies. It not only consists of cash and

savings but also access to credit, and the ability to quickly and easily convert other assets such as cattle into cash (Allison & Ellis, 2001).

1.10.3 Policies, Institutions and Processes (PIP)

Transforming structures and processes are the institutions, organizations, policies, and legislation that shape the livelihoods of the artisanal fish workers. According to Allison and Ellis (2001), transforming structures and processes influence the access that people in artisanal fisheries have to various assets, the terms under which those assets are traded, and the value of the outcomes of livelihood strategies. Policies and legislations may limit the involvement of the artisanal fish workers in decision-making processes and thus reduce the effectiveness of their livelihood assets. As a result, the enabling environment is useful in determining the roles, responsibilities, rights, and relations of the different participants in these structures and processes such as defining fisheries management objectives, enforcing the legislation on fishing, and the relationship between the fisheries departments and other institutions that support the sustainability of the fishing community (Ellis & Allison 2004).

1.10.4 Livelihood Strategies

Udong, Tilburg and Niehof, (2010) in a study conducted in Nigeria, concluded that artisanal fish workers often focus on more than one livelihood strategy. They engage in other income generating activities when fish production is threatened by factors such as seasonal fish stock fluctuation. When high seasons coincide with low availability of other food sources such as agriculture, fisheries can ensure food security. During the high season, the cash income generated from selling fish can be invested in other assets, or livelihood diversification, which can further reduce vulnerability to poverty. Studies have found that households involved in fishing have higher incomes than households involved in alternative income generating activities

(Ellis, 2000a; Udong, Tilburg & Niehof, 2010). People involved in fishery-related livelihoods are vulnerable to a variety of factors such as reduced catch, pollution, fish theft, fluctuation of price, and lack of infrastructure among others (Allison & Mvula, 2002), creating in them, a need for coping strategies.

1.10. 5 Livelihood Outcomes

Livelihood outcomes are the achievements of livelihood strategies such as increased income, increased well-being, reduced vulnerability, improved food security, and a more sustainable use of natural resources (e.g. appropriate property rights). Rabbanee, Yasmin and Haque, (2012) suggest that women traders need to adapt to innovative marketing strategies to overcome the vulnerable situations faced by the fisherwomen and thus attain sustainable livelihoods through better livelihood outcomes. Livelihood outcomes are directly influenced by the livelihood assets and changed dynamically by their level, legislation and policy that guide the use of the natural resource, results of the vulnerable situation in the fishing activities and how they impact on the women participation in fishing livelihood and other non- fishing activities (Ellis, 2000a; 2000b).

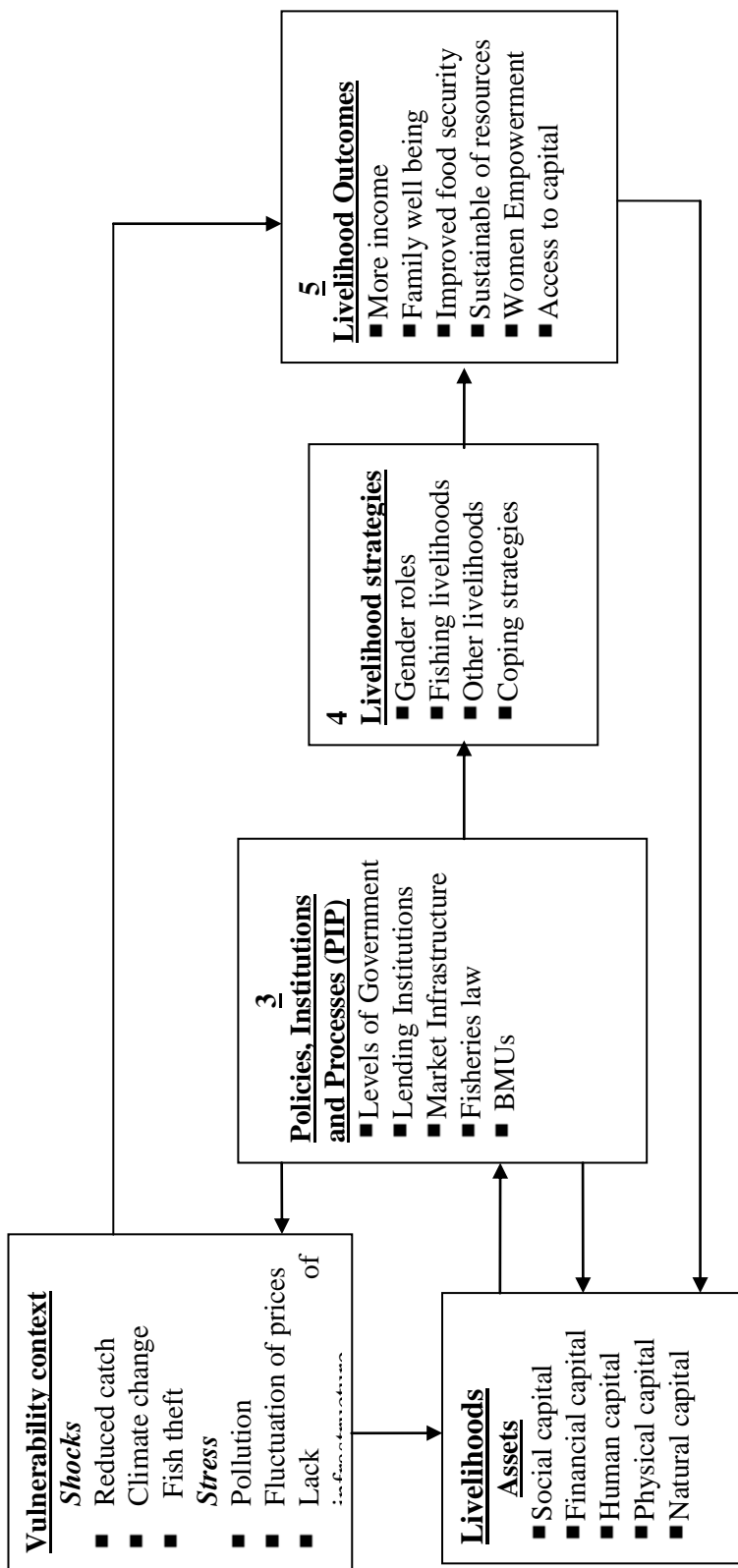


Figure 1. Sustainable Livelihood Framework (SLF). (Source: DFID, 1998)

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter is a review of literature on the participation of women in fish production and is categorized into five broad themes comprising of Women in Socioeconomic Development, Women Empowerment, Gender Role in Fisheries, Livelihoods in Fisheries, and Kenyan Policies Supporting Small Scale Fisheries.

2.1 Women in Socioeconomic Development

According to Omari (1995) in O’Riordan, Swai and Siundu (2006), women participate in various sectors of the economy and in domestic services for which no monetary rewards are received. In addition, women play major productive roles in business and community services within the informal sector. As individuals or groups, women engage in micro and small business orientation activities from which they get some income.

Although women make tremendous contributions to economies, their contributions are not valued in the same way as men. As a result, women consistently find themselves at a lower economic status than men (UNDP, 2006). According to Kome (2000) and Turnbull (2001), the causes of women's economic inequality compared to men include lesser earnings, unpaid labour, longer lives, discriminatory single-parenthood, unequal distribution of resources, lack of access to education, job segregation, inadequate access to credit, institutional rigidities and lack of access to and control over productive resources (McCormick, 2001; UNDP, 2003; 2006). In addition to the economic factors, the rigidity of socially ascribed gender roles, women's limited access to power, education, training and productive resources, as well as other

emerging factors that may lead to insecurity for families, are also responsible (Bauer, Finnegan & Haspels, 2004; Brana, 2008; Cheston & Kuhn, 2002; Shane, 2003).

Studies by ILO (2003), UNFPA (2009), and World Bank (2000) pointed out that in subsistence economies, women spend much of the day performing tasks to maintain the household such as, fetching water and fuel wood. In many countries, women are also responsible for agricultural production and trade, and they work at times in tough conditions just to ensure that their families survive. The role of women in the informal sector of developing economies has recently been acknowledged as significant through the inclusion of income generating activities by women, which had formerly been excluded (UNPFA, 2004; UNPFA, 2009).

According to Baden and Milward (2000), feminization of poverty has recently become a significant problem in countries with economies in transition, as a short-term consequence of the process of political, economic, and social transformation. While poverty affects most households, because of the gender division of labour and responsibilities for household welfare, women bear an unequal burden while attempting to manage household consumption and livelihood under conditions of increasing scarcity (UNDP, 2003; IFC, 2002). Women contribute to economies and to combating poverty through both rewarded and unremunerated work at home, in the community, and in the workplace. Therefore, the empowerment of women is a critical factor in the eradication of household poverty. However, there is some recognition of the potential of small-scale fisheries in alleviating poverty and reducing food insecurity in rural areas (Béné, 2006, Béné et-al, 2003 and Smith et al, 2005).

A study by Ellis, Blackden, Cutura, MacCulloch, and Seebens (2007) revealed that Kenyan women make a large although frequently invisible contribution to the country's economy, particularly in the agricultural and informal business sectors.

However, women face legal, regulatory, and administrative barriers to start and run businesses than do their male counterparts (ILO, 2009). The National Poverty Eradication Plan 1999- 2015 (GoK, 1999a) and the Sessional Paper No. 3 on National Poverty Reduction (GoK, 1999b) indicate that women constitute 51% of the total population in Kenya and over half of the labour force. Kimani and Kombo (2009) in analyzing the National Poverty Eradication Plan 1999- 2015, observed that gender mainstreaming was not identified as one of the lessons learnt by the Government, meaning that the roles of women in poverty reduction and wealth creation were not recognized as important ventures in poverty reduction interventions. They further observed that equal participation of women and men in trade and industry was crucial for rapid economic growth. This would enable poor women and men to generate income that would go directly to the household, thereby alleviating poverty.

2.2 Women Empowerment

Mayoux explains, *“the concept of empowerment is notoriously contentious”* Mayoux (2001, p247) that financial self-sustainable paradigm defines empowerment as a the *“ultimate aim being the expansion of individual choice or capacity to self-reliance”* Mayoux (2001, p248). Hainard and Verschuur (2001) emphasize that empowerment should be a process of developing negotiation skills from the bottom up, to redress unequal power relations and produce new development models. In order to create more gender equality and alleviate poverty among women in both urban and rural settings, scholars and field practitioners have recognized the importance of empowering women (IFAD, 2009; Hainard and Verschuur, 2001; Mayoux, 2001; Yeshiareg, 2007). Yeshiareg (2007) observed that increased focus on gender and development debate has been an important development of the last three decades. The global players realized that failure to pay closer attention to the differentiated positions

of women and men in society, resource allocation, rights, and opportunities and in formulating policies and designing projects could have adverse effect on development outcomes. With this understanding, the consensus around the Beijing Platform for Action was adopted at the fourth UN International Conference on Women in 1995 held in Beijing. Recommendations made at the Beijing conference were meant to promote women's economic rights and independence. They included education, training and socialization, improved access to credit and finance, building and strengthening of female entrepreneurs' networks, and improving access to management and marketing skills and appropriate technology. They were to address key constraints on the economic empowerment of women in Asia, Africa and South America. It also recommended the facilitation of women's equal access to resources, employment, markets, and trade, in addition to provision of business services, training, and access to market information and technology, particularly to low-income women in addition to strengthening women's economic capacity and commercial networks (United Nations, 1995). The World Summit Outcome Document of 2005 articulates the resolution for achieving the Millennium Development Goals (MDGs) (United Nations, 2007). Promotion of gender equality and empowerment of women is recognized not only as a goal in itself but also as an essential step for achieving all the other goals. Processes that could lead to women's empowerment include changes in women's access to and control over resources, changes in women's control over decision-making, changes in women's mobility and social interaction, and changes in women's labor patterns.

2.2.1 Changes in Women's Access to and Control over Resources

The International Fund for Agricultural Development (IFAD, 2009) reported that women's economic empowerment was essential in promoting equality between

women and men, and a pre-condition for sustainable development and pro-poor growth. Women's economic empowerment is achievable through equal access to and control over economic resources and opportunities and the elimination of structural gender inequalities. Resources are critical to people's identities, livelihoods and advancing independence and rights. However, due to gendered divisions of labour, patriarchal cultural norms and laws and economic inequalities, women in all their diversity have been denied access to resources such as education, health services, credit, land and technologies (United Nations, 2009). According to Adato, and Mindek (2000), ensuring women's economic empowerment and access to and control over resources requires an integrated approach to growth and development, focused on gender-responsive employment promotion that is informed by the interdependency between economic and social development.

2.2.2 Changes in Women's Control over Decision-Making

A study in developing countries by UNFPA (2009) revealed that women's contribution to household resources is to counter poverty and improve nutrition. As a result women have managed to contribute to household incomes, in addition to having decision making bargain and power in the household (United Nations, 2009). A study by Ologunde and Ako-Nai (2005) on household survival and economic empowerment of women in Nigeria found that cultural and socio-economic characteristics determined the resource allocation within the household, which in turn establishes the distribution of responsibilities and control over resources. The study found that changing trends caused by education, growing awareness of the deliberate inequalities and the need to correct them and the economic situation, reshape the decision-making processes within households.

2.2.3 Changes in Women's Mobility and Social Interaction

A study by IFAD (2000) indicates that from the 1990s, new status hierarchies have emerged, leading to new opportunities for competition. The study found that Asian and some African countries, have seen a boom in employment of women in the communication sector, distribution of goods, centralized administration, and have a more improved urban living because of women's empowerment. Studies by Sawhill (2007) and Clark (2010) have also shown that the status of any given role is based on its economic rewards and mobility.

2.2.4 Changes in Women's Labour Patterns

In a study conducted in India and Bangladesh (IFAD, 2000) found that women's representation in a range of occupations increased over a 20 year period, with changes in some higher-level jobs being particularly distinct. There was increase in the equality of access to certain occupations but that did not mean that women and men progress at the same rate within an organization. ILO (2009) reported that there are barriers towards women's equal participation in the labour market, which are divided into two broad categories:

- i. Practical barriers, such as access to affordable and flexible working arrangements, and
- ii. Cultural barriers, including the persistence of informal networks from which women are excluded, lack of women representation in positions of authority, and the continuation of working cultures in which women are not encouraged or expected to succeed.

2.3 Livelihoods in Fisheries

Fishing communities' dependency on a shrinking, fragile, and unpredictable resource base makes fishing households vulnerable to the internal and external processes that

affect their livelihoods (Manasi, Latha, & Raju, 2009). Small-scale fishers are economically poor and most vulnerable as fish catch depends on external factors beyond their control. Poverty alleviation is now high on the agenda of most developing-country fishery management agencies and their development partners. Sustaining livelihoods of the poor in fishing-dependent communities by enabling or enhancing their access to fishing opportunities is prominent in contemporary fisheries development thinking (Allison & Horemans, 2005).

Agriculture, fishing and related activities are important sources of livelihood among the majority of communities in Lake Baringo. Moreover, inhabitants of the region do not stick to one particular economic activity, but combine many activities to make a living. These economic activities are environmentally and agriculturally oriented and provide employment for a vast majority of the people, as unskilled labourers easily adapt to the processes involved.

According to Ellis (1999), alternative economic activities, access to assets and fishery resources jointly determine the income of the household. A study by Ahmed and Solaiman (2007) in Bangladesh found that lack of access to livelihood assets and empowerment opportunities represents a further barrier in the livelihood systems of fishing communities. The fisheries communities are characterized by weak capital assets, particularly natural, financial, human, and physical resources. Only social capital can be considered as strong in some cases and it is possible to build on it to improve the other assets and reduce vulnerability (SFLP, 2006). Access to livelihood assets helps people survive and thrive. Although it is impossible to define a minimum level of assets needed for survival as the categories are highly subjective and location specific, it is obvious that people's overall asset status, is the way they are able to

respond to changes and face hardship (Ellis, 2000a; Ellis & Allison, 2004; FAO, 2006; Kurien, 2001).

2.4 Gender Roles in Fisheries

Although fishing is predominantly the role of men in Kenya, women have a central and crucial role in the fisheries sector. In the industrial fisheries women dominate the processing lines of fishing companies, working on shift duties either permanently, or providing casual labour during peak livelihood periods (Overa, 2000). Chando (2002) observes that women occupy the post-harvest sector by forming the link between fish capture and consumption. Their participation in fisheries can be viewed under categories of activity areas such as unloading of fish from fishing canoes when they land, marketing of the catch, fish processing including smoking and drying, and fish products marketing (Overa, 2000; White, 1999). Chando (2002) and Overa (2000) in West Africa found that women financed both fisher's fishing materials and fishing trips but, very seldom do they own fishing canoes or go out fishing.

Berke (2001), Chando (2002) and Overa (2000) revealed that in the coastal fishing communities of Ghana and Gambia, women engage in other economic activities. These include retail trade in various food commodities, tailoring, soap making, hair and beauty products, and other income generating activities to augment the family income, particularly during periods of low fish catches. They also separately engage in vegetable gardening or farming. In Nigeria, women in the fisheries sector have their own independent business activities that allow them to look after their own needs and those of their children, and the household in general (Overa, 2000). Studies by White (1999) on women's employment in the agro and food-processing sector, suggest that women in South Asia and East Africa are significant participants in the artisanal fishing industry. They are considered specialists in post-harvest activities even though

traditional socio-economic expectations place special demands on the role of women and they change their economic activities in line with the economic environment of the community.

Studies conducted by FAO (2003) and Overa (2000) showed there is no actual statistics on gender roles in water resource management activities. However, in Nigeria a study by Overa (2000) revealed that men are responsible for decision-making and the planning of fishing activities, while women have little authority and have to seek their husbands' permission. Nonetheless, rural women in water resources areas play a key role in water resource management and food security. On the other hand, Kaing and Ouch (2002) observed that in Thailand and China, women often bear the sole responsibility of farm and aquaculture production because of male migration to cities. However, women's contribution to fishing and aquaculture is often unrecognized and the real benefits from their involvement in the activity not objectively assessed.

In rationalizing the gender perspective in the development process of Kenya fisheries, Kimani (2004) observed that while men dominate this field, majority of the women are in the informal sector handling small-scale businesses and using their meagre income to sustain their families. According to the Government of Kenya (GoK, 2008), the Vision 2030 in its social pillar recognizes achievement of gender equity as a prerequisite for fast and sustainable economic growth and empowerment, increased livelihood outcomes, and reduced vulnerabilities. In order to achieve the MDGs, gender fisheries development programmes need to focus on improving infrastructure such as fish roads, fish landing sites and beaches, promoting fish processing, improving and maintaining fish quality standards, and fish demonstration and fish

farmers training for effective and increased fish production while incorporating gender equity.

2.5 Policies and Legislature Supporting Small Scale Fisheries in Kenya

The Poverty Reduction Strategy (PRS) Paper and the Economic Recovery Strategy (ERS) Paper (GoK, 2002) highlight specific priority actions that the Government needed to implement to ensure poverty reduction, wealth and employment creation, and to achieve a rapid turn-around of the economy. In the PRS Paper, the poverty alleviation activities were identified and prioritized for resource allocation. All fisheries activities were classified as core elements due to their direct impact on a large rural population. The ERS, which was predicated on PRS paper, presented a clear road map towards the realization of wealth and employment creation in the period 2003–2007. The strategy also identified sustainable use of natural resources, which include fisheries, as areas that ought to be targeted for rapid economic growth. According to FAO (2007b), the fisheries policy in Kenya encourages fishing communities to take a co-management approach in fisheries management. In order to improve the fisheries sub-sector's performance, the fishery departments and the relevant stakeholders undertook several activities concerning fisheries resources management, utilization, processing and marketing. Kenya's Ministry of Fisheries found it beneficial to incorporate the fishing communities in fisheries resource management through the formation of Beach Management Units (BMUs) to co-manage the resources. The process was aimed at giving the BMUs legal backing to empower them in the management of fisheries at beach levels (Kariuki, 2005). Legal Notice No. 402 of the Fisheries Act 2007 (Cap 378) of the Laws of Kenya contains the Fisheries Beach Management Units Regulations 2007. These Regulations paved the

way for the establishment of BMUs for each fish-landing station. The objectives of the BMUs according to the Fisheries Act 2007 are, among others to:

- i. Support the sustainable development of the fisheries sector.
- ii. Help alleviate poverty and improve on welfare and livelihoods of members through improved planning and resource management, good governance, democratic participation, and self-reliance.
- iii. Strengthen the management of fish-landing stations, fishery resources and the aquatic environment.
- iv. Recognize the various roles played by different sections of the community including women in the fisheries sector.
- v. Prevent or reduce conflicts in the fisheries sector.

The Lake Baringo BMU concept was borrowed from Lake Victoria Fisheries Organization (LVFO) with the aim of improving East African Community fisheries resource management by incorporating the prime stakeholders into a management unit comprising of an assembly, executive committee and a sub-committee (FAO, 2010). Lack of policies that ensure capacity building in value addition, well-developed marketing facilities, functioning supply chains, and market information systems both in rural and urban areas cause a serious constraint on fishing livelihood (FAO, 2007b). In mitigating these inadequacies, Kenya has implemented partly the MDGs, the Constitution, and the Ministry of Fisheries Development Strategic Plan: 2008-2012 and Vision 2030 flagship MTPs I Projects: 2008-2012 by identifying the fisheries sub sector, sustainable environment and nature resource management as key contributors to the Economic and Social Pillar. In the MTPs II Projects 2013- 2018, the sector is expected to contribute to national food security and therefore social stability that is vital for sustainable livelihoods and development, to provide employment in fish

farming and to capture fisheries especially in the rural areas as a way of controlling rural urban migration.

The fishing sector supplies animal feed and pharmaceutical industries with raw material as well as micro-processing industries in the rural areas (Pauly, Christensen, Guénette, Pitcher, Sumaila, Walters, Watson, and Zeller, 2002). In the implementation of the Strategic Plan 2007-2012, the Government intended to improve on the infrastructure and development for the under-exploited fisheries potential areas (GoK, 2007b; GoK, 2008).

2.6 Summary and Gaps in Literature

In summary, this chapter gives an overview of related literature in fishing livelihood. It discussed the purpose of gender role and the implication of women and men participation in fishing livelihood. The literature has also reviewed the role of women in socioeconomic development, women empowerment, and gender role in fisheries, livelihoods in fisheries, and Kenyan policies that are supporting small-scale fisheries. Current literature gaps include limited information on gender roles and participation in fishing livelihood in Kenya fisheries. Literature has revealed very little on how livelihood variables in fishing livelihood affect both men and women. Therefore, this study gives an overview of gender roles in fishing livelihood, gender factors influencing practices in fishing livelihood as well as the coping strategies adopted in fishing livelihood.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

The purpose of the study was to investigate what livelihood activities influence gender roles in Lake Baringo and the implication of women participation in fishing livelihood. The research was conducted in the fishing community around Lake Baringo, between March 2009 and February 2010. This chapter describes the research design, study location, sample and sampling procedures, research instruments, data collection and analysis procedures.

3.2 Research Design

This study investigated the gender roles, factors influencing gender participation, and the coping strategies adopted in the fishing livelihood of the Lake Baringo fishing community. The descriptive research was carried out in a field setting of Lake Baringo and was designed as a cross-sectional survey. The data collection methods used involved both monitoring and interrogation approaches. This enabled first hand perception of the experiences of the participants while allowing for the use of both qualitative and quantitative techniques of data analysis.

3.3 Study Location

Lake Baringo is one of Kenya's largest freshwater lakes and located at the Rift Valley floor in the west central parts of the country. Crocodiles, hippos and birds inhabit it. Historically the lake has been very important for the fishing industry, tourism and is a freshwater reserve for livestock. However, water in Lake Baringo is considered to have an outlet in its northern end and form a groundwater runoff, which emerges at Kapedo springs 110 km north of Lake Baringo (Sanyu 2001).

Lake Baringo ecology is classified as semi-arid, around 60 km north of the Equator (Sanyu 2001). The Lake's catchment area stretch is between dry arid areas with bare sparse vegetated ground to more humid, cultivated and lush regions.

The study was conducted at Kampi Samaki Beach Management Unit, which comprises of Kampi Samaki, Ngenyin, and Ol Kokwo landing sites, on the southern shores of Lake Baringo in Marigat division, Baringo County (*Appendix I*). The study site was purposively selected because of its:

- i. Prominence of landing sites for both traditional and commercial fishing activities.
- ii. Accessibility by fisher for delivery of large quantities of fish for direct sale or as raw materials for processing and marketing.
- iii. Accessibility by fish traders who buy fish from fishers upon landing.
- iv. Use for other livelihood activities from the community.

3.4 Study Population

The population of interest in this study was 82, this included 49 fish traders and 33 fishers registered with the fisheries at Kampi ya Samaki Beach Management Unit, in the Marigat Division of Baringo County. The population also included a secondary user who interacts with the women and men in fishing livelihood.

3.5 Sample and Sampling Procedure

A multi-stage sampling procedure and purposive selection of respondents was adopted for this study. After the three landing sites of the Kampi ya Samaki BMU were identified, a stratified sample of registered fishers and fish traders was selected. At the time of the study the Lake Baringo Fisheries Department records had registered 49 fish traders (Ol' Kwoko 9, Ngenyin 15 and Kampi ya Samaki 25) and 33 registered fishers

(Ol'Kokwo 8, Kampi ya Samaki 15 and Ngenyin 10). Out of which Twenty five (25) fish traders and 11 fishers had renewed their trading and public health licenses. Since the number was small, the 25 fish traders and 11 fishers that had renewed licenses formed the sample size. However, the response rate was low among the women, and therefore the sample comprised of 12 fish traders (women) and 9 fishers (men).

3.6 Data Collection Methods, Tools and Procedures

A variety of data collection methods were used in order to improve the sampling accuracy. These included personal interviews, focus group discussion and participant observation, which allowed for the gathering of comprehensive information. Data collection tools included a semi-structured questionnaire that was used to collect data on different aspects of women and men's participation in fish production. Further information was gathered through participant observations, personal interviews, and focus group discussions, using observation checklists, questionnaires and interview guides.

3.6.1 Personal Interviews

Pretty, *et-al* (1995) define personal Interviews) as guided conversations, which give rise to new questions or insights because of the discussions and visualized analyses. Pretty et al (1995) point out the need for adequate preparation, using an interview guide or checklist, and such resources as visual aids to encourage participation and dialogue. Six interviews were conducted, two interviews in each landing beach. The interview sessions involved artisanal fishers, and fish processors. In this study, a topical guide (Appendix III) was used in semi-structured interviews to gathered data on:

- a. How the fishing livelihood had changed over the years.
- b. Factors causing these changes in fishing production.

- c. Coping strategies the fishing community has adopted to adjust to the livelihood challenges in Lake Baringo.

3.6.2 Focus Groups Discussions

Focus group discussions (FGDs) are conducted with groups of individuals to help explore how meanings and experiences are negotiated and contested between group members (Baker, 1999) under the guidance of a facilitator. FGDs were found useful in this study, given the diverse resource users within the fishing communities who are either involved directly or indirectly in the fishing activities and management.

Two FGDs were held at Kampi ya Samaki with respondents from Ngenyin, Ol' Kwoko, and Kampi ya Samaki landing beaches. The FGDs were conducted separately for the fishers, and for the fish traders. There were twelve respondents, with representation of two respondents (one fisher and fish trader) from each landing beach. The small number of respondents allowed for effective participation, with each discussion lasting one hour.

The FGDs were guided by an interview schedule (Appendix II), moderated by the researcher who was assisted by the BMU Manager to translate the questions and responses. Data was gathered on the various harvesting and post-harvesting activities undertaken by both genders. This included the specific activities that they undertook within the harvesting and post-harvest functions, the challenges they faced, the roles played by the BMUs, cultural influence on their activities and the availability of external support for their activities.

The focus group discussions allowed for the creation of an atmosphere of co-learning, where the respondents were able to clarify their thoughts through discussions with each other and the facilitator.

3.6.3 Participant Observations

Participant observations were done to assess the participation of fishers' fish harvesting at the landing beaches and in homes where fish traders processed the fish. An observation checklist (Appendix IV) was used to collect information on various activities undertaken by both genders during the harvesting, processing and marketing of fish.

Visual observations and photography of the communities' fishing methods, repair of fishing equipment, methods of processing including gutting, preservation purchase, sales and distribution were carried out as part of the immersion process. This gave helpful and valuable insights into the daily activities of the respondents and their involvement in the fishery while providing the information that needed to be recorded and in selection of pertinent data. The observations made also included the negotiation for the catches by the women, and the roles they played in the artisanal fishery. A daily journal of observations and reflections was maintained as backup and to track the progress of the study. Given the busy schedule of the fishing community and their limited time to engage in dialogue, participant observations was an important procedure for collection of data and validation of results obtained.

3.6.4 Questionnaire

According to Patton (2002), questionnaires are self-reporting instruments that are used to gather information about variables of interest in an investigation. A general livelihood assessment questionnaire (Appendix 1) comprising of four sections was administered in Swahili (and in some cases the local dialects of Tugen and Njemps) to the participants. Information gathered in the first section included, general demographic and social characteristics. The second section covered the gender roles in fish production, and the social-economic activities undertaken by the respondents

while the third section gathered information on their involvement in fishing activities, factors that influenced the fish trade, and their access to livelihood assets. The fourth section attempted to uncover the constraints faced in fish production, coping strategies, and benefits of fishing livelihood to households. The questionnaire provided quantitative data from which descriptive statistics were drawn.

3.7 Validity and Reliability

In the context of this research, validity relates to the extent to which a test measures the variables under study while reliability refers to the precision of a measurement procedure or the degree to which it is free from bias (Creswell and Clark, 2007). The questionnaire, observation checklist, interview and topical guides were evaluated for their simplicity, precision in wording and relevance to the study. Pretesting was carried out in March and December 2009, whereby minor adjustments were done on the questions to provide for adequate coverage of the investigative questions guiding the study.

Over time, researchers have used triangulation in research (Creswell and Clark, 2007; Creswell, 2009; Eriksson and Kovalainen, 2008; Ryan et al., 2002; Yin, 1994). This is intended to improve the accuracy of the measurement. In this study, multiple data collection methods were used in order to improve the reliability of the data. These included semi-structured interviews, focus group discussions, and participant observations, in addition to the member checking method of analyzing and verifying the data collected from the interviews and focus group discussions. According to Thomas (2003), triangulation offers a range of perspectives in the study process and outcomes. The approach was preferred due to the advantages as identified by Teddies and Tashakkori (2006). These include increased reliability of findings since it allows for the examination of the same phenomenon in different ways.

The preliminary findings of the study were presented to stakeholders in a workshop sponsored by CIDA through the Moi University Fishery and Aquatic Science Department at the research site.

3.8 Data Analysis

The study is guided by the Sustainable Livelihoods (SL) framework (Figure 1) as set out by DFID (2004) which places people at the centre of a web of inter-related influences that affect how people create a livelihood for themselves.. The framework focused on the resources and livelihood assets to which women and men have access and use. In this research approach, gender analysis (Carney, 2002) focused on the lives of women as separate or distinct from the lives of men.

Primary data was entered in the Excel 2007 spread sheet and cleaned for irregularities. The cleaned data was summarized into descriptive format in terms of frequencies and percentages that represented men and women participation. Coding the responses thematically enabled the data to be classified into category sets and analysed using the Microsoft Office Excel 2007 spreadsheet to generate statistics in frequencies and percentages.

The qualitative data was checked for consistency with the research question. The responses from personal interviews and FGDs and observation were sorted out based on the landing sites and grouped according to gender. The data was then arranged thematically and analysed for content.

The audio tapes used to collect data from the focus group discussions were transcribed and the data checked for consistency with other research responses and reported in form of narratives. Photographs taken during participant observation were put into different category and sets in major themes that were identified and summarized for

use in qualitative analysis. According to Kothari (2000), data arranged in this way helps the researcher in formulating themes, refining concepts, and linking them together to create a clear description of a topic in the final stages of analysis and during the course of analysis and explanation.

CHAPTER FOUR

RESULTS AND DISCUSSION

4.1 Introduction

This chapter presents the findings. Demographic information of the respondents, factors that influence participation of women and men in fishing livelihood, women and men entrepreneurial roles in the fishing livelihood and influences of fishing livelihood to the community livelihoods are discussed.

4.2 Demographic Characteristics of the Respondents

Age: The study considered age as an important factor because it gives an indication of the age at which men or women entered the business of fish production and, of productivity. The study revealed that 25% of the women and 22% men respectively, were aged between 19 and 28 years, a lower proportion of women (17%) compared to men (33%) were in the age group 29 – 38 years, while 33% of the women and 22% of the men were in the age group 39-48 years. These results concur with those of UNPFA (2004) that found that the prime age of entrepreneurial activity for human beings is 15 – 48 years. A higher proportion (25%) of those active in the fish industry and between the ages of 49-58 years were found to be women as compared to men (11%).

Marital Status: The study also found that a majority of the respondents were married (women- 67%, men- 100%), an indication that majority of the respondents' households had at least two members contributing to the household income. However, the study also found that 17% of women were single, 8% widowed, and 8% separated, an indication that they were sole providers and decision makers in their household and businesses.

Work experience: The study also found that while 67% of the women had worked in the fish production for a period of over 21 years, 77% of men had worked for less than 21 years. An indication that both women and men had been involved in the fishing livelihood for a long duration.

Education level: The study further found that 50% of both women and men had basic education. However, 33% of the women and 38% of the men had no formal education while 17% and 13% of the women and men respectively, had secondary level education. These findings are consistent with the general observation that fishing communities often do not attain very high levels of formal education (ILO, 2008).

Ethnic and religious background: The study also showed that majority of the respondents, were Tugens (women-82 %, men-100%) from the main land and Njemps from the Island. The migrants were women (18%) whose spouses worked within the lake community. Migrants came from Luo and Turkana communities and had prior experience of fish trade, and therefore found a business opportunity when they came to Lake Baringo. On religious affiliation, the study found that majority of women (100%) and men (89%) were Christians while 11% of the men did not ascribe to any religion.

Table 1. Demographic Information

Variable		Response %	
		Women n=12	Men n=9
Age (Years)	19- 28	25	22
	29- 38	17	33
	39- 48	33	22
	49 – 58	25	11
	>59	0	11
Marital Status	Married	67	100
	Single	17	0
	Widow/widower	8	0
	Divorced	8	0
Period in fish production (Years)	1 to 5	17	11
	6 to 10	8	33
	11 to 15	0	22
	16 to 20	8	11
	21 to 25	25	0
	26+	42	22
Formal Education	None	33	38
	Primary	50	50
	Secondary	17	13
	Post-Secondary	0	0
Place of Origin	Natives	82	100
	Migrants	18	0

Table 2. Demographic Information (Continued)

Variable		Response %	Response %
		Women n=12	Women n=12
Religion	Muslim	0	0
	Christian	100	89
	African Traditional Religion	0	11

N=21

4.2 Gender Roles in Fish Production

In this section, the study identified gender roles for different tasks in fishing livelihood. Participants indicated their roles in the respective stages of fish production, harvesting, processing, and marketing.

4.2.1 Gender Roles in Harvesting

The harvest process involves fishing, repairing of the canoes and nets, offloading, and weighing the catch. Information from focus group discussions (FGD) with the men explained the gender roles. The study found that all harvesting activities: repair of nets, building and repair of canoes, providing security and off-loading were perceived as a male domain. Below is a quote from a man on the role of men in fish processing.

For anyone to engage in fishing one must have courage because the lake is very dangerous. In addition, to engage in fishing one would need to build a canoe. We fetch the building wood stems from Ol' Kokwo Island. When we are out fishing in the waters we are keen on whether the canoe is leaking, and on landing, we repair and build canoes. Women are not able to go fishing because it is a difficult task and dangerous. Most of them fear the turbulent waters (Male respondent from Ol' Kokwo Island, FGD).

FGD interviews with the women indicated that in as much as men are mostly engaged in actual fishing, women fish traders from Ol' Kokwo Island fish secretly. This is explained in the story below.

First story:

Mama Daniel is a 27-year-old woman living in Ol' Kokwo Island. She is a licensed fish trader and not a licenced fisher. Her business has not been doing well. She explained why she goes fishing as follows:

I joined fish production 7 years ago, soon after the lake reopened for fishing. I was the first fish trader from the Island while others were from the Mainland. The fish business has been very difficult since the introduction of the new regulation that requires every person involved in the fish business to have a license, unlike before. These days it has changed as fishers and fish traders have to pay for annual licenses, public health testing, and certificates. The fee charged is too high for all of us. Due to this, fish traders who have more money will pay fishing licences for the fishermen and they are paid back through the fish caught. This is disadvantageous especially for those who are struggling to raise a family. I do not have extra money to give out as credit. This would affect my business capital, especially when fish is scarce because the fishermen sell to the highest bidder. Since it is illegal for non- licensed persons to fish, I secretly go fishing in the evenings when the fisheries scouts have returned to the Mainland. In return, I earn more money without putting my life in danger or experiencing turbulent waters (Female respondent from Ol'kokwo Island, FGD).

Mama Daniel's story explains why 34% of women fish traders were found to be involved in fishing using nets and hooks as indicated in Table 2.

The study further found that majority of the women respondents (67%) were involved in off-loading as seen in Table 2 and in Plate 1. The women who were observed while offloading fish indicated that most of them had prior arrangements with the fishermen, whereby the women would be involved in off-loading as a means of confirming the catch, thus reducing the chances of the men defaulting on the repayment of the monies advanced to them by the women.



Plate 1. Women offloading fish from the boat to the canoe at Kampi Ya Samaki landing beach. (Source:Author, 2010).

Interviews with fishers gave three reasons why women were involved in offloading fish:

- i. Most women fish traders gave credit to fishermen. Hence, they feared that the fishermen might cheat them on the number of fish caught or sell to other traders.
- ii. Fishers sold to the highest bidder. Therefore, the first women at the shore offloaded as they negotiated the price of each fish caught.
- iii. Traders are responsible for payment of the fishing levy, which is imposed on the persons licensed to handle fish after landing.

Therefore, this study indicated that fish harvesting activities were not an exclusive activity for men, as mistrust and prior agreements between the fishers and the fish traders determined the participation of women. These results agree with those of Madanda (2003) that found fish harvesting was not static and varied in different communities according to the regulations put in place. During interviews, the word 'mvuvi' that implies fisher was used to refer to a fisherman although it is a genderless noun in Kiswahili. This observation is consistent with Bækgaard and Henrick (1992) who argued that fisherwomen in fishing communities have always existed but have been mistakenly referred to as fishermen. The study concurs with those done by Chando (2002) and Overa (2000) who also found that women financed fishers to buy fishing materials, and rarely do they own fishing canoes or go fish harvesting.

Table 3: Gender roles in Harvesting

Variable	Response %	
	Women n=12	Men n=9
Fishing with nets	17	100
Fishing with hooks	17	100
Repair nets	33	100
Build/Repair canoes	17	100
Provide security	0	100
Off-loading and weighing	67	100

N=21

Multiple responses allowed

4.2.2 Gender Roles in Fish Processing

Fish processing involves cleaning and value addition. The cleaning activities include removing of scales and intestines, and cutting the fish into smaller pieces, while value addition includes smoking, deep-frying, salting, drying, and packaging.

This study revealed that 100% of the women in fish processing participate in removing of the scales, removing the intestines, cutting fish into smaller pieces, and smoking or deep-frying. However, processing is not restricted to women. Twenty two percent of the men were found to be involved in processing fish, especially where the fisherman has a relation with the fish trader as shown in Plate 2 below.



Plate 2: Fish trader being assisted to remove intestines and scales.

(Source: Author, 2010)

However, it was observed that on few occasions, men helped smoke fish as shown in Plate 3. During interviews and FGD with the men, they expressed that value addition was mostly cooking, a task traditionally left to the women. Below is a quote from a fisher.

Culturally, it would look odd if men were to fetch firewood and prepare the fish. These kinds of activities are for women, while men look after the livestock. But men can help the women fish traders in removing scales and intestines since it is similar to slaughtering an animal and occasionally, smoke the fish and repair the 'bola - (Male respondent from Kampi ya Samaki, FGD).



Plate 3: Fish trader Awilo being assisted to smoke fish on the 'bola'.

(Source: Author, 2010)

Information obtained from the FGD with women indicated that men were also engaged in fish processing. Men either involved in fish processing as assistance or paid labourers. The story below explains this further:

Second story:

Awilo is a migrant woman trader in her 40s living in Kampi ya Samaki. She is a licensed fish trader. She explains her reasons for engaging men in her trade as follows.

I came to Kampi ya Samaki early 90s to visit a relative. I was a young woman and learnt to process fish from my aunt who worked in the fish-processing factory. Over the years, my business has grown, earning me an average income. Two years ago, I started selling my fish in Kabarinet and Marigat. The markets proved to be good and the demand was high. As a result, I put up three more 'bolas' that helped me smoke more fish. Now I have five in total. When I have many fish to process, I hire at least two people to assist in removing scales and intestine, drying and smoking. In many instances, I hire young men because they are readily available as most of the women are

involved in household chores or small businesses. From the lake, we harvest four types of fish; tilapia, lungfish, and catfish. We deep-fry Tilapia, while lungfish and catfish are smoked. When I hire the men or when my husband is assisting in value addition, they only smoke lungfish and catfish while I deep fry tilapia and lungfish because the community does not approve men cooking in the presence of a woman. However, this does not apply when the men are removing intestines and scales or cutting to required pieces (Female respondent from Kampi ya Samaki, FGD).

The findings in general concur with Madanda (2003) who found that fish processing is influenced by cultural beliefs and practices that exist in the fishing community.

4.2.3 Gender Roles in Fish Marketing

Fish marketing in this study involves the process of marketing fish from the fisher to the consumer. Fish production involves the fishers, processors, and finally fish traders. The traders are either retailers or wholesalers, who eventually sell at the local market, to nearby markets or urban markets.

Records in the Lake Baringo District Fisheries Office showed that all licensed traders were women, who therefore dominated fish marketing. Men were only involved in marketing of fish upon landing at the beach. During the study, it was observed that fishers and traders had created marketing networks. All fishers from Ngenyin, Kampi ya Samaki and Ol' Kokwo sold to traders in their respective BMU landing beaches.

Table 3 shows that 25% of the women sold value added fish to other fish traders who had access to markets in other regions. Fifty percent of women fish traders had access to markets in Marigat and Kabarinet while 25% of women fish traders had access to urban markets such as Nakuru, Nairobi, and Kisumu. They were found to monopolize the urban and regional markets while playing the role of fish brokers. However, 58%

of the women fish traders were also found to market fish in the local Kampi Samaki, Ngenyin, and Ol' Kwoko villages. The results of this study indicate that men are involved in selling harvested fish to the women traders. The women traders would process and sell some of the fish in the local market and to other traders who had access to external markets. Figure 3 below shows how the men and women inter-relationships harvesting to marketing of the fish products.

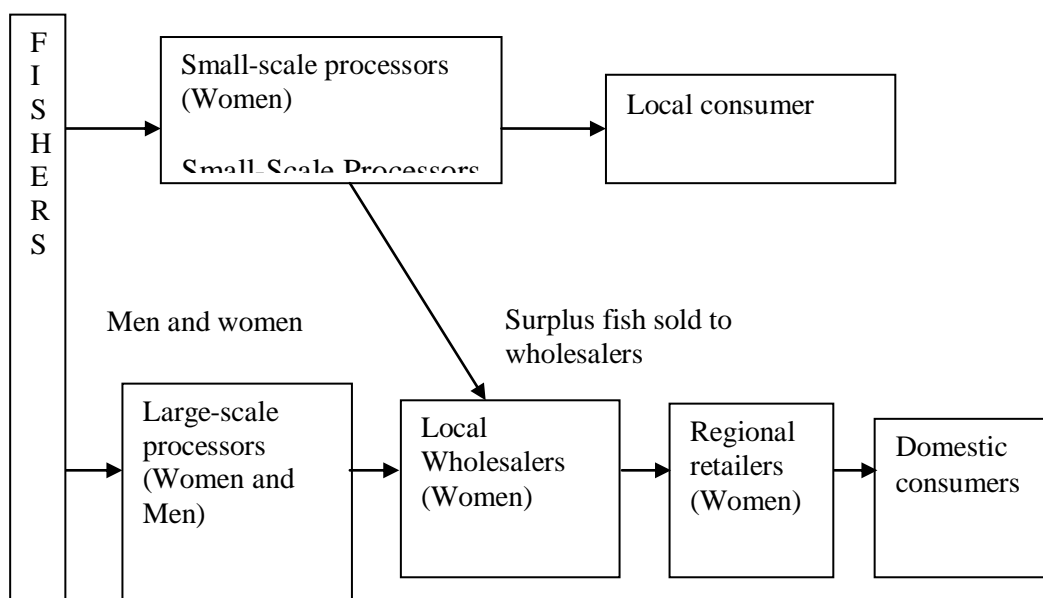


Figure 2. Actors' Roles In Value Chain In Fish Marketing Process

Table 4: Gender roles in Marketing

Gender roles	Response %	
	Women n=12	Men n=9
Selling fish after harvesting	0	100
Selling value added fish to other fish traders	25	0
Selling to nearby markets	50	0
Selling urban town markets	25	0

N=21

Multiple responses allowed

4.3 Factors that Influence Women and Men Participation into Fishing Livelihood

This study assessed factors that influence women and men participation in fish trade. The participation of men and women in fishing livelihood is influenced by both internal and external factors. The internal factors that influence their participation are mainly the livelihood outcomes; that is fish production being family owned businesses, influence of friends, low education levels, alternative sources of employment, household incomes, poverty levels, family welfare, and sustainable food security. External factors that influence the participation of women and men in fish production include livelihood assets and policies, institutions and processes that include cultural influences, the BMU policy, access to capital, and access to transport and communication.

4.3.1 Internal Factors that Influenced participation in Fishing livelihood

The focus group discussions (FGDs) revealed reasons for women and men joining fishing livelihood activities. The main reasons given by 100% of men and women for participating in fishing livelihood were employment, improvement of household income, reduced poverty, improvement of the family well-being and having sustainable food security. The study found that a higher proportion of women (75%) than men (45%) joined fishing livelihood because it was a family business. However, 66% of the women and 89% of the men agreed that lack of alternative employment had forced them to join fishing livelihood activities. On the question of possible influence by friends, 75% of women and 78% of men indicated that friends in the fishing livelihood activities did not influence their participation in the same.

From the FGDs, men pointed out that during the 2002 to 2004 fishing ban, families were allowed to fish for food and it was the young men and boys who did the fishing. When the lake was reopened, they became commercial fishermen. However, though the lake is open for all to earn a living from fishing activities most men find the work tiring and risky and most opt for other easier income generating activities such as livestock keeping or bee keeping. Of all the respondents, 42% of the women and all men (100%) agreed that lack of basic education had contributed to their participation in the fishing livelihood. From interviews, women indicated that even those with basic education joined informal employment. On the other hand, men indicated that if a person had no formal schooling, the probability of getting decent jobs was low and they were confined to poverty, especially in the village.

The study also reveals that more women (75%) than men (56%) thought that cultural influence on gender had nothing to do with their fishing livelihood activities, although

their work and responsibilities were generally divided along gender lines. Although women did not agree with the men that lack of basic education had any contribution to them joining the fishing livelihood, none of the participants in this study had any tertiary education. A study by Cheston and Kuhn (2002), suggested that business training and investment in women's general education are important elements that complement income-generating activities that are essential for women's economic empowerment. Ahmed and Solaiman (2005) similarly found that women participate in fishing livelihood due to social and economic factors that influence their households. Table 4 below shows the internal factors that influenced gender participation in fishing livelihood.

Table 5: Internal Factors that Influenced participation in Fishing livelihood

Internal Factors	Responses %	
	Women	Men
	n=12	n=9
Influence by friends	25	22
Cultural influence to Gender role	25	44
Family in business	75	45
Alternative employment	66	89
Lack of education	42	100
Source of Employment	75	100
Improved household income	100	100
Reduced poverty	100	100
Improved family welfare	100	100
Sustainable food security	100	100

N=21

Multiple responses allowed.

4.3.2 External Factors that Influenced Participation in fishing livelihood

The results from the FGDs show external reasons that women and men considered to have motivated them into participating in various fishing livelihood activities. The study revealed that the main factor influencing either gender's participation in fish production was access to fish. Men (100%) and women (89%) agreed they had access to ready markets. Men (100%) and women (78%) agreed they had access to transport and communication. During the interview with the women, they explained how mobile phone communication was important. The phones facilitated communication with their

clients when fish was dispatched using specific public service vehicles to regional markets. They would therefore reach the market without incurring travelling expenses. Upon receiving the goods, their clients would send money through wireless money transfer, and the traders would then pay the fishermen likewise.

However, participants disagree that culture had influenced them to participate in harvesting, processing, and marketing of fish. During the FGD with men, they emphasized that communities around the lake have been pastoralists from time immemorial. It was reported that Robert Adamson, a hotelier in the community, introduced fishing in the mid-60s and a factory later built in the early 70s. Most of the initial fishermen were migrants, but the local women were involved in the processing. However, later when the factory shut down, the women got involved in processing and marketing, while harvesting was left to the local men.

Interviews revealed that 22% of the women and 67% of men agreed, that the BMU policy was favourable and influenced them into participation in specific fishing livelihood activities. However, during the FGD, both men and women agree that the BMU had not achieved its objectives.

During the interviews and FGDs, both men and women agreed they had access to both start-up and re-financing capital. 66% of women and 67% of men reported access to start-up capital while 73% women and 56% of men had access to micro finance and saving groups. On the other hand, 89% of women and 56% of men were in self-help groups where they had group savings, which acted as security for loans taken. Table 5 below shows the external factors that influenced gender participation in fishing livelihood.

Table 6: External Factors that Influenced Participation in fishing livelihood

External Factors	Responses %	
	Women	Men
	n=12	n=9
Cultural influence on harvesting, processing & marketing	0	0
Favourable laws & BMU Policy	22	67
Access to start-up capital	66	0
Access to Micro finance	73	56
Access to Transport and communication	78	100
Access to self-help groups	89	56
Access Ready of Market	89	100
Access to Fish	100	100

N=21

Multiple responses allowed.

During the interviews and FGDs, majority of the women reported that access to financial support played a key role in the success of their businesses. The story below highlights some of the factors that influence women participation into fish production.

Third story:

Mama Hilda, one of the successful women traders, in her 50s and living in Kampi ya Samaki, is a licensed fish trader. She recalls her success with nostalgia and pride:

I started as a worker in the fish-processing factory in the 70s and later when it closed down, I went into business. In the 80s and 90s, business was very good.

We received buyers who came with refrigerated vehicles from main towns to

buy fresh fish. Then, we had safer wooden boats that brought in more fish and we would sell up to 30kgs in a day. In 2000, there was decline in fish and Fisheries Department banned fishing for three years. This affected our only source of livelihood. When the lake reopened in 2004, I was fortunate, as I had just received KES 2400 from my welfare group. The money became my start-up capital, I used the money to pay for my license, public medical examination, build one 'bola', buy a deep frying pan and oil and with the balance, I bought my first fish stock. Over the years, my business has grown greatly because I am able to take credit from the Kenya Women Finance Trust, and Kampi Samaki Jitegeme Self Help Women's Group. The success of my business has given me advantages as I am able to buy fish daily since I have loyal fishermen who supply me with fish. The main reason being, I give them credit to pay for their licenses and to buy fishing gear. I do not charge them any interest since our agreement is for them to supply me with fish valued at the amount lend to them. As my business grew, I was able to market the smoked fish in Nakuru and Nairobi. Before I bought my mobile phone, I used to travel to the towns in order to make deliveries and collect money. Due to reliable transport and communication, I am able to arrange with the fishermen for supplies and to receive orders from my customers. This business is very important and I cannot abandon it since my family depends on it. As the fishing community, we need to preserve the lake. This business is my office. It does not need much education and with a little money, one can make a living. From the initial KES 2400, today my business is valued at KES 50,000 I am very proud of myself for the hard work and perseverance (Female respondent from Kampi ya Samaki, FGD).

During the interviews and FGDs, the men highlighted factors that influenced their participation in fish production. The story below highlights these factors.

Fourth story:

Albert is an active licensed fisherman in his 30s and living in Kampi ya Samaki. He explains some of the factors that have influenced him:

I started working when I was 19 using a wooden boat that was used before the 2002 fish ban. After the re-opening of the lake for fishing in 2004, the fishermen did not have the knowledge of boat building. As a result, we started building canoes, buying gill nets and hooks, and lines. The cost of one net is KES 500, while fishing lines cost KES 200 per roll, with each hook costing KES 5. Unlike women traders, men need not less than KES 3000 to break even. To catch more fish, a fisherman will need more than one (1) net and 100 hooks. In most instances, they come back without any catch, especially during the breeding season. Further, when the lake is flooded, it becomes difficult to catch mudfish, which is the most common species. Unlike women who have self-help groups and micro-finance organizations that assist them, men depend on selling their livestock. I must confess that the last two years have been very difficult. Our livestock died due to drought. In my case, all my goats died at the same time my fishing nets wore out. To sustain my livelihood, I approached one of the women fish traders, who lent me some money to buy hooks, fishing lines and gill nets. On average, I make between KES 500 and 1000 in a day depending on the season. It is a challenge paddling the canoe into the deep waters. When the catch is big, I call the tour boat owners to come and pick me. I am looking forward to learning how to build or buy a 22-foot

plywood boat. It costs no more than KES 15,000 (Male respondent from Kampi ya Samaki, FGD).

The findings from the study and stories from participants indicate that cultural influence did not motivate women and men into participating in fish production. However, access to finance was a major factor. Unlike men, women were able to access finances in different ways and as a result, the fishermen relied on women for financial support.

4.4 **Coping Strategies Adapted by Women and Men**

The livelihoods of the Lake Baringo community are diverse and change over time. These changes are due to seasonal trends that have adverse effects on the livelihood activities, resulting in loss of livestock and floods and thus rendering the people vulnerable. Due to these vulnerabilities, the men and women have adapted livelihood strategies that comprise of a range of activities and choices that they undertake in order to achieve their livelihood outcomes.

4.4.1 Challenges Faced by Women and Men in Fishing livelihood

This study revealed that women and men faced challenges at different stages of fish production. Table 6 gives a summary of challenges facing women and men in fishing livelihood. The study shows all women (100%) experienced constraints in the form of theft of fish, scarcity of fish, market competition, capital flight, limited and high license fees. Equally, all men (100%) identified theft of fish, bad fishing habits, scarcity of fish, environmental degradation, capital flight, and high license fees as their main constraints.

The study further revealed that 89% of women and 78% of men felt constrained by price fluctuations. However, the price fluctuation was attributed to competitive forces,

including those of supply and demand. Whereas, men had no problem with high cost of transport, but it was a constraint to 77% of the women. Other constraints identified were safety issues where 78% of the women and 67% of men showed concern. During the interviews and FGDs with men and women, they expressed great concern on the safety of fishers. Below are quotes from men and women on the safety of fishers and fish traders:

4.4.1.1 Fear of Capsizing

When you look at the lake, you may think it is calm. It is just a year ago when the accident involving children and teachers from one of the schools took place. No one suspected the danger ahead when suddenly there was a strong wind, which caused a big wave. The motor boat they were using capsized and all of them died. These are the kind of risks we face every day when we go out in our canoes (Male respondent from Kampi ya Samaki, FGD).

4.4.1.2 Fear of Hippopotamus Attacks

I fear for my life when I leave the Island to bring my catch at Kampi ya Samaki. Last month we missed an encounter with a hippo, but our colleague from Ngenyin was not lucky. He was behind us when we heard the screams. The hippo had turned and crushed him. He died on the spot (Male respondent from Ol, Kokwo, FGD)

4.4.1.3 Fear of Crocodile Attacks

One day, I was helping a colleague clean her fish while waiting for my fish supplier to arrive. Along the shore, there were crocodiles that usually feed on the intestines and lungs of the fish that have been cleaned and disembowelled. We

never thought they were harmful. However, on that day while offloading my fish, one of the crocodiles attacked me. Although it was killed, I am now cautious when the crocodiles are near the shore (Female respondent from Ngenyin, FGD).

With regard to preservation methods and lack of technology, 67% of the women fish traders had challenges in the preservation methods. Also 88% of women identified lack of technology as a key challenge in fish processing, while 92% of men indicated lack of modern technology in harvesting. However, from the interviews with the women, they indicated that the two technological challenges were interrelated. Below are quotes from FGDs with women and men who face constraints in harvesting and fish preservation technology.

4.4.1.4 Lack of Modern Value-addition Technology

One of the main challenges I face as a fish trader, is inadequate knowledge of proper processing and preservation methods. When the road is impassable due to too much rain, we experience losses since we cannot transport our fish. The processed fish perishes due to the preservation methods used that is, deep-frying and smoking. Deep fried and smoked fish can be preserved only for a week before it starts moulding. On the other hand, our fish commodity does not fetch much money. The methods used for value addition are poor. If we were able to pack fresh or smoked fish I believe it would fetch high prices and as well as supply supermarkets (Female respondent from Ngenyin, FGD).

4.4.1.5 Lack of BMU Support

When the BMU was introduced, the Government promised a lot. The promises made included the provision of motorized boats, fishing lanterns, a packing machine, an improved kiln and coolers. Although a BMU building was

constructed, the cold room has never been completed due to lack of funding
(Female respondent from Ngenyin, FGD, No 2).

In summary, the study shows that specific constraints such as theft of fish, scarcity of fish, market competition, capital flight, limited and high license fees and environment degradation affect both fisher and fish traders whether man or woman. These findings concur with those of Bennett *et-al* (2004) who found that the constraints facing fishing communities were increased pressure on fish stocks, environmental impacts due to climate change, and economic factors including rise in living costs. The findings also, agree with Sarker, Chowdhury and Itohara (2006), who argue that the factors affecting women's participation in fishing livelihood is linked to access to credit facilities and access to markets. Table 6 below shows the challenges faced by women and men in fish production.

Table 7: Challenges Facing Women and Men in Fishing livelihood

Challenges	Responses %	
	Women	Men
	n=12	n=9
Theft of fish	100	100
Safety issues	78	67
Bad fishing habits	78	100
Harassment from fishery officers	33	89
Scarcity of fish	100	100
Environmental degradation	89	100
Market competition	100	89
Price fluctuation	89	78

Challenges	Responses %	
	Women n=12	Men n=9
High cost of transport	77	0
Capital flight	100	100
Limited capital	100	78
Poor preservation methods	67	11
Technology	88	92
high license fees	100	100

N=21

Multiple responses allowed

4.4.2 Strategies Adopted to Cope with Challenges in fishing livelihood

Currently, lack of economic opportunities has led fishing households to diversify their livelihood activities. Fishing communities adapt to alternative income generating activities in order to improve their income and well-being. The study therefore, investigated the livelihood strategies they adapt to, to cope with in fish production. The findings are summarized in Table 7 below. This study revealed that both women and men engage in alternative income generating activities to cope with difficult times in the fishing trade. All men (100%) and 89% of women were found to pursue alternative businesses, while 44% of the women abandoned fishing livelihood temporarily. 100% of the Men and 67% of women formed business groups where they contributed small amounts of money to invest in other businesses. However, 78% of the women and 89% of men were found to practice subsistence farming in addition to fishing. While 78% of women and all men (100%) indicated they would remain in

fishing, 33% of women indicated, they would work as casual labourers to limit their exposure, with 100% of the men favouring the same. Table 7 below shows the strategies adopted by men and women to overcome the challenges faced in fishing livelihood.

Table 8: Strategies Adopted to Cope with Challenges in Fishing livelihood

Strategies Adopted	Response %	
	Women n=12	Men n=9
Change business	89	100
Abandon fishing	44	11
Borrow money	44	56
Pool resources	22	44
Formed business groups	67	100
Subsistence Farming	78	89
Remained in fishing	78	100
Form Partnership	0	67
Go for Casual labour	33	100

N=21

Multiple responses allowed

4.4.3 Key Issues and Possible Interventions

During the FGDs, there were key issues that women and men emphasised during interaction and felt the Government through its agencies could provide interventions as indicated below in Table 8 below.

Table 9: Emerging Issues and Possible Interventions

Issues	Interventions	Actor
High fee	Reduce license fee from KES 200 to KES 100 per fishers and fish trader.	Ministry of Fisheries and Livestock, Ministry of Health and Local Council
Lack of surveillance	Provide surveillance boats, this would reduce stealing of fish and illegal fishing	Ministry of Fisheries and Livestock and BMU, Police
Lack of training capacity	Train fishers to build wooden boats and on good fishing practices, fish traders on methods of value addition, and educate the community on resource conservation	Ministry of Fisheries and Livestock, BMU and Developing partners
Lack of proper market infrastructure	Establish a fish market, fish marketing board, or cooperatives, Revive the fish-processing factory, and complete the cold room.	Ministry of Fisheries and Livestock, BMU and Developing partners
Lack of	Introduce the concept of cage fish	Ministry of Fisheries

Issues	Interventions	Actor
management of natural resource	breeding and farming.	and Livestock, KMFRI and Developing partners
Lack of environmental conservation	Reduce environmental degradation, build dams up-spring, plant trees up-spring, and reduce water pollution by hotels.	NEMA, Ministry of Fisheries and Livestock, BMU and Developing partners
Lack of credit facilities from Government	Provide credit facilities	Ministry of Fisheries and Livestock, BMU and Developing partners

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter summarizes the findings of the results presented in Chapter Four. It also gives recommendations on policy, planning, and other selected issues affecting men and women in fishing livelihood. The final part of this Chapter presents suggestions on areas that need further study.

5.2 Summary

To achieve these objectives, 12 women and 9 men involved in fishing livelihood were selected using stratified random sampling. The selected men and women were interviewed and observed for a period of two weeks on daily basis, to find out the factors that affect their participation in fishing livelihood. Summary of the findings are discussed below under the three research questions:

What are the gender roles in fishing livelihood in Lake Baringo?

This question was answered through interviews, observations, and a questionnaire administered to men and women in fish production in Lake Baringo. The data obtained from this study reveal that women and men generally had clearly defined roles in fish production in Lake Baringo. These roles were not influenced by cultural but rather, social factors.

1. Men dominated harvesting activities that is repair of nets, building and repair of canoes, providing security and off-loading. Although 34% of women got involved in fish harvesting, it was done illegally in order to increase their income.
2. Women (fish traders) offloaded fish because they had prior arrangements with the fishers to repay credit given to them (in form of nets, hooks and fishing lines),

which was settled with fish, fishers upon landing left the responsibility of paying fishing levy to fish traders.

3. Women performed all the activities that can be categorized as processing, that is: removing scales and intestines, cutting into pieces and smoking or deep-frying fish. Men were hired by women to help in smoking fish, building and repairing the ovens ('bola').
4. The study further revealed that women were the main actors in the fish marketing process, although men were involved in the initial stages.

Findings on gender participation in the three main activities in fish production revealed that while men dominated harvesting, women were dominant in processing and marketing, with a few women occasionally involved in harvesting.

What factors influence participation of women and men the in fishing livelihood in Lake Baringo?

The findings from the study revealed that there are internal and external factors that influence women and men's participation in fish production.

a. Internal factors

The internal factors considered in this study were those aimed at improving the livelihood outcomes. The factors found to influence women and men's participation in fishing livelihood include:

- i. Need to improve household income
- ii. Desire to reduce poverty
- iii. Desire to improve family welfare,
- iv. Need for sustainable food security.

However, men also joined fish production because it was an alternative source of employment as they lack education that could help the find 'better jobs'.

b. External factors

External factors considered were the livelihood assets, policies, institutions and processes that the participants had access to and control. Those found to influence participation in fishing livelihood include:

- i. Access to fish,
- ii. Access to markets,
- iii. Access to micro finance,
- iv. Membership of self-help groups,
- v. Transport and communications infrastructure.

However, the study found out that laws, policies and financial institutions were not favourable to women and men in fish production. Implementation of the BMU Fishery Policy was found to be slow. Compared to men, women were found to have access to finances due to their ability to pool their savings and join self-help groups and micro-finances, which enhanced their financial security. Men were found to lack financial stability and therefore depending on the women to advance them credit.

What coping strategies do women and men adapt to overcome constraints in the fishing livelihood in Lake Baringo?

At the time of field research, women and men were facing challenges at different stages of fish production. These stages include harvesting, processing and marketing.

Harvesting: At the harvesting stage, the main challenges faced by men and women included:

- a) Scarcity of fish,
- b) Theft of fish by other fishers,
- c) Environmental degradation due to siltation and hotel pollution,
- d) High license fees,

- e) Bad fishing habits,
- f) High license fees.

Processing: At processing stage, the main challenges faced included:

- a) Poor preservation methods and
- b) Lack of infrastructure such as a cold room, icemaker or processing factory.

Marketing: At the marketing stage, men (fishers) were directly affected by challenges faced by women. Those that affected women (fish traders) were:

- a) Market competition,
- b) Price fluctuations,
- c) Capital flight,
- d) Limited capital.

Due to these challenges, women and men were found to engage in alternative income generating activities to reduce their exposure to vulnerable livelihood. These income-generating activities ranged from alternative businesses, subsistence farming, and temporary employment.

5.3 Emerging Issues in the Lake Baringo Fishing Communities

In the course of the study, key issues were identified that posed major challenges to the fishing livelihood. These include poor surveillance, inadequate training in fish handling, processing, storage and distribution, poor market infrastructure, poor management of natural resource, poor environmental management and lack of credit facilities. These challenges can be mitigated through public private partnership, with the community having home grown solutions. The Lake Baringo BMU Committee needs to take a more active role in implementing the various policies that affect the fishing communities.

5.4 Conclusions

Based on the findings of this study, the following conclusions were made:

- i. Both genders generally have clear, defined and socially influenced roles in fishing livelihood. While men dominate harvesting activities, women are also involved in fishing and offloading. On the other hand, women dominate processing and marketing activities, with men also involved in fish smoking and the building and repair of ovens.
- ii. Access to fish and lack of alternative means of employment influence the participation in fishing livelihood in an attempt to reduce poverty and improve food security. Access to pooled savings from self-help groups and micro-finance institutions, in addition to access to markets enables women's participation in fishing livelihood. The slow pace of implementation of the BMU policies has also prevented access to and control of assets by the fishing community.
- iii. To overcome the various challenges faced in the fishing livelihood, most women and men would form partnerships or business groups; and engage in subsistence farming. Men would also engage in casual labour, while women engage in illegal fishing.
- iv. Inadequate training on modern technologies, poor market infrastructure, poor environmental and lake management also emerged as issues of concern to the men and women in the fishing livelihood.

5.5 Recommendations

Based on the findings of the study, the following recommendations are made:

- i. **Gender mainstreaming:** Even though, both men and women claim gender roles are not determined by cultural factors, if not checked, the passive involvement of women in fish harvesting and men in processing and marketing can cause gender inequity in the future. To mitigate this unforeseen problem, the Baringo County Fisheries Officer in conjunction with the BMU Management Committees needs to sensitize the local community in their involvement in all fishing activities. The BMU Policy needs to be reviewed to include licensing options such that women and men can have the option of a single license or double license for fisher and fish trader, as well as incorporating the requisite technical information and skills that will enable them engage fully in fish production.
- ii. **Implementation of the BMU Policy:** The slow implementation of the BMU Policy as discussed in this study, needs monitoring and evaluation. Although Government has a regulatory role, community participation is important. Therefore, the participation of the fishing community in the implementation of the BMU objectives will enable women and men to gain equal access to and control over this natural resource as well as initiate stability measures.
- iii. **Access to financial resources:** Lack of access to savings and credit institutions has a direct effect to access to livelihood assets. Assistance is required that will build financial confidence and experience to individuals in the fishing community. The Baringo County Fisheries Officer through the BMU Management Committees needs to sensitize the local fishing community on the Government initiatives of the Economic Recovery Strategy models such as Table Bank and Youth, Women and Marginalized Groups Funds among other initiatives for poverty eradication in marginalized communities.

- iv. **Address challenges in fish production:** Poor fishing habits was a major challenge facing the fishers during the fish harvesting process. The Baringo County Fisheries Officer needs to intensify patrols to enforce the use of correct fish harvesting practices as well as promote aquaculture along the shore of the Lake Baringo and train the community on this new farming practice. The National Environment Management Authority should equally take measures aimed at preventing the release of toxic effluents into the lake. These interventions would ensure adequate fish supply and contribute towards stable prices and reduced market competition.

The study found that there was need for innovation and modern technological processes in fish preservation. To achieve these, the Baringo County Fisheries Officer in conjunction with the BMU Management Committees need to intervene in capacity building and training of fishers on modern practices of value-addition in smoking, salting, icing, freezing, gutting, deep-frying and drying of fish. This would aid in improving the quality and shelf life of fish, thus increasing the marketing potential. Additionally, the Baringo County Fisheries department needs to assess the viability of construction of ice plants that would be able to provide affordable ice to the fish traders. This would assist in prolonging the preservation period of the fish, thus reducing post-harvest losses.

At the marketing process, the study found that the fish products did not fetch much in the urban market due to competition, creating the need for marketing services that will ensure the fishers and fish traders of Lake Baringo have equal access in the fish market. Formation of Fish Traders Associations, with the prime objective of marketing fish and fish products on behalf of members, could strengthen the current fish marketing channels. The women traders could thus

explore the sale of high quality dried and smoked fish, as well as develop innovative and attractive packages under a specific brand name.

- v. **Intervention for income generating activities:** Lake Baringo is fragile and vulnerable to climatic change and over exploitation. The women and men from the community draw most of their livelihood from fisheries resources apart from the small-scale bee and livestock keeping. Therefore, there is need for the Government to institute capacity-building programs through educational workshops to help open up new prospects that can reduce dependence on fishery resource and improve individual livelihoods. This kind of intervention for the community could therefore work well with the support from the co-management process.

5.6 Theoretical and Conceptual Contribution

Sustainable Livelihood Framework

The use of Sustainable Livelihood Framework (SLF) for this research helped to identify key aspects of the fishing livelihood. Though this research was not able to fully cover the components within the framework, the SLF was found to be an invaluable tool that enabled in-depth understanding of the complex socio-political and economic dynamics of gender participation in the fishing livelihood of the Lake Baringo fishing community.

Based on the discussions, this study assumes that issues related to the fish trade, gender roles, and the individual livelihood, all interact in a web of complex inter-relationships that influence the livelihood and the participation of men and women in fishing activities. The DFID (1998) 'Sustainable Livelihoods' Approach (SLA) framework enables an understanding of the fishing livelihood of both fishers' and fish traders' situation in the dynamics of sustaining livelihoods in Lake Baringo. It presents

a holistic view of the institutional structures and processes that affect the fisheries business and determines the adaptive strategies adopted by the women fish traders and men fishers. It builds on the strengths the women and men are viewed as possessing, the five sets of livelihood assets capitals.

Gender and Development

The adoption of GAD concepts of gender roles and relations illustrate that men and women hold gender differentiated interests in natural resource management through their socially constructed distinctive roles, responsibilities and knowledge. Gender is thus understood as a critical variable in shaping processes of viable livelihoods and the prospects for sustainable development. Guided by the Sustainable Livelihoods Approach (SLA) framework (DFID, 1998), gender analysis tool that follows a binary approach, focusing on the lives of women as separate or distinct from the lives of men.

5.7 Suggestions for Further Research

- i. There is need for comparative studies on the topic of gender roles in the fisheries of the various lakes in Kenya. Since this study cannot be generalized to represent other inland fishing activities.
- ii. Further studies on the components of the Modified Sustainable Livelihood Framework could be carried out to help identify gaps and suggest interventions that would help shape the sustainable fishing livelihood in the Lake Baringo fishing community.

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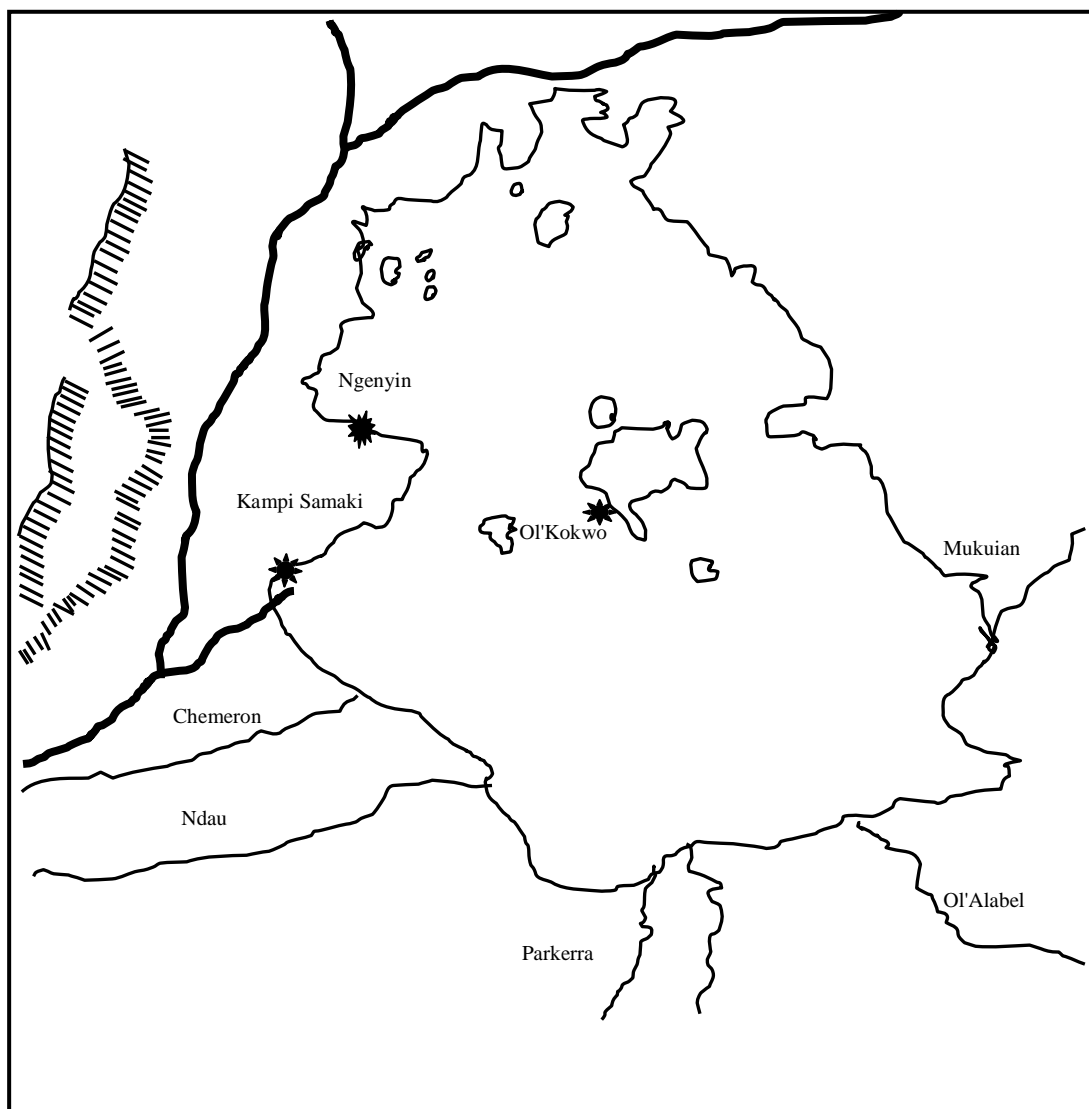
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APPENDICES

Appendix I. Lake Baringo Map: Source the Rehabilitation of Arid Environments
(RAE) Trust, 2007



Appendix II Questionnaire

TITLE: LIVELIHOOD ACTIVITIES OF LAKE BARINGO FISHERIES: THE PARTICIPATION OF WOMEN IN FISHING LIVELIHOOD.

The purpose of this study is purely academic and aimed at contributing to the understanding of the participation of women and men in the fishing livelihood. You are kindly requested to participate in filling in the questionnaire while being assured that any information shared will be confidential. Thank you.

CODE :

Place of interview :

Trade (tick one that's appropriate): Fisher men.....or/ Fish trader.....

Date

Section A: Demographic and Socio-Economical Characteristics (tick one that's appropriate):

1. Gender

Female		Male	
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2. Religion affiliation

Muslim		Christian		Traditional religion	
--------	--	-----------	--	----------------------	--

3. Age

19- 29		30-40		41-51		52-62		63 +	
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4. Marital status

Single		Widow/widower		Divorce		Separated	
--------	--	---------------	--	---------	--	-----------	--

5. Formal education

None		Primary		Secondary		Post-secondary	
------	--	---------	--	-----------	--	----------------	--

6. Place of origin

Native		Local		Migrant work	
--------	--	-------	--	--------------	--

7. The period the traders have engaged in trade.

1-5		5-10		11-15		16-20		21-25		26+	
-----	--	------	--	-------	--	-------	--	-------	--	-----	--

Section B: Gender Roles and Socio-Economic Activities

1. Role performed Gender roles in the fishing livelihood

No	Activity	Tick any that you Agree
1	Harvesting	
	Go to the lake to fish with fish nets	
	Use a hook to fish	
	Repair fishing net	
	Repair canoes	
	Provide security to fishermen	
	Off loads/ load fish	
2	Processing	
	Removing scales from fish	
	Extraction of the intestine	

	Smoking fish	
	Sun drying fish	
	Salting fish	
	Deep frying fish	
3	Marketing	
	Buying and distributing of fish to other traders	
	Take to other regional markets	
	Vending fish in homes and nearby villages	
	Accessing buyers from urban markets	

Section C: Factors That Influence Participation of Women and Men In Fish Production

1. What prompted you to join the fishing industry?

Reason for joining the fishing trade	Tick any that you Agree
My family members were in the business	
Because I failed to get a job elsewhere	
I was I influenced by friends	
My educational level was low to get a formal job	
It is the culture of the community	
To be employed	
To improve household income	
Reduce poverty	
Increase the well-being of the family	
Improve source of food	

2. Access to livelihood assets (capital) that can sustain your business

Capital/ Livelihood Assets	Tick any that you Agree
Social Capital	
Trading network/ relationship	
Saving group	
Micro- finance group	
Financial capital	
Ready cash	
Savings	
Supply on credit	
Convertible assets	
Human capital	
Fishing skills	
Processing skills	
Marketing knowledge	
Physical capital	
Boats/canoes	
Fishing gear	
Processing energy	
Communication	
Natural Capital	
Fish on landing	
Landing site	

2. Factors that influenced you to participate in particular activities in the fish production

Factors influencing participation in fisheries	Tick any that you Agree
Cultural influence prevents me from participating in harvesting	
Cultural influence prevents me to Processing and marketing	
Policy regulations on BMU were favourable to participate	
Low initial capital required	
Availability of market for the fish product	

Section D: Challenges Affecting Fishing Livelihood in the Fishing Community

1. Which challenges are affecting fishing activities in Lake Baringo?

Variables	Tick any that experience
Limited capital	
Fish theft and cheating	
Price Fluctuation	
Technology	
Fishing gear restriction	
Taxes/ license fees	
High transport cost	
Safety issues	
Poor preservation tools	
Reduced catch	

Culture	
Others	

2. Coping strategies by the women in trade

Variables	Tick any that experience
Abandon/ change business	
Borrowing money	
Pooling resources	
Forming groups	
Partnership	
Trade in Less Demanded Fish Species	
Farming	
Casual Labour	
Others	

5. Comment on the involvement of institutional in the fishing community.

Institutional involvement	Comment
Health Department	
Fishing Department	
BMU	
KEMFRI	
NEMA/Environment conservation NGOs	

Appendix II: Interview Schedule for Focus Group Discussions

INTERVIEW SCHEDULE FOR FOCUS GROUP DISCUSSIONS

Questions asked to women and men at the Focus Group Discussions

1. What are your roles in fish production, harvesting, processing, and marketing?
2. What other post-harvesting activities are both men and women involved in?
3. What cultural beliefs forbid women from fishing activities?
4. Which activities do men support women, and which do women engaged directly?
5. What major constraints do you face in your fish activities?
6. What have you done to overcome such constraints?
7. Do you have a special group/ association/cooperative for the fishery? Are they useful? In what ways, mention some.
8. What is the role of government in promoting your fish activities?
9. What policies or laws relate to fish farming and how do these affect your activities?
10. Do you get any support from private enterprises (NGO's) and what kind of support?
11. How can you achieve sustainable fish activities in Lake Baringo?

Appendix III: Interview Guide**INTERVIEW GUIDE**

BMU Landing Site: _____

Date of study: _____

Gender: _____

Questions asked to selected women and men from each BMU landing site.

1. What specific activities are you involved in harvesting of fish?
2. What post-harvesting activities are you involved in?
3. Do men and women help each other in fish production?
4. Do you think cultural beliefs influence fishing activities?
5. What major challenges do you face in your fish production?
6. Do you have any other business other than fish production?
7. Are you in any self-help group/ association?
8. Do you have any savings from fish production?
9. What is the role of BMU to fishing activities?
10. Do you have any alternative income generating activities that help reduce dependency on Lake Baringo resources?

Appendix IV: Observation Checklist**OBSERVATION CHECKLIST**

Date of study: _____ Landing site description:

Group/Individuals name: _____ Photo numbers:

1. Observations of fishing activities

Variable	Activity	Comments on Observations:
Harvesting	Fishing with nets	
	Fishing with hooks	
	Repair fishing net	
	Repair canoes	
	Off loads/ load fish	
Processing	Removing scales from fish	
	Extraction of the intestine	
	Smoking fish	
	Sun drying fish	
	Salting fish	
	Deep frying fish	
Marketing	Buying and distributing to other traders	
	Sell in regional markets	
	Vending fish at homes/ villages market	

2. Observations of alternative income generating activity

No	Type of Income Generating Activity	Comment

Appendix V: Letter of Request to Undertaking Research Study

Eileen J. N. Nguthari

Department of Family and Consumer Science,

Moi University-Chepkoilel Campus

ELDORET

13th November 2009

The District Fisheries Officer,

Ministry of Livestock and Fisheries

Marigat District,

MARIGAT

Dear Sir

Ref: LETTER OF REQUESTING TO UNDERTAKING RESEARCH STUDY

I am a postgraduate student at Moi University pursuing Master of Philosophy In Home-science Education and Technology.

This is to inform your office that I wish be carrying out a research study on

“Livelihood Activities of Lake Baringo Fisheries: The Participation of Women in Fish Livelihood”.

Your assistant will be of great help.

Yours Faithfully



Eileen J.N. Nguthari

Cc.

The Chief

Officer of the President and Internal Security,

Kampi Samaki (Sub-location)

Appendix VI: Letters of Authority to Undertaking Research Study

REPUBLIC OF KENYA



MINISTRY OF FISHERIES DEVELOPMENT

REF: FISH/FDM/BAR/102/28

DISTRICT FISHERIES OFFICER,
LAKE BARINGO STATION,
P.O BOX 48,
KAMPI YA SAMAKI.
04/01/2010.

The Head of Department,
Family and Consumer Science,
Moi University,
ELDORET.

Dear Sir/ Madam

RE: LETTER OF AUTHORITY OF MS. EILEEN J.N. NGUTHARI TO UNDER TAKE REASERCH

We take this opportunity to inform you that the above named student has been allowed the authority to research on the topic "**Livelihood Activities of Lake Baringo Fisheries. The Participation of Gender in Fish Livelihood**", at Lake Baringo Fisheries Station and Beach Management Units for the period of **December 2009 to April 2010**.

During the research the student is expected to research on the following areas;

- a) Beach Management Unit (BMU) operation (fish landings, handling and quality assurance)
- b) Sustainable capture fishery management of Lake Baringo
- c) Post harvesting practices and fish processing

We will gladly guide her on her research and provide all materials and information to the best of our ability.

Fmk
DISTRICT FISHERIES OFFICER
BARINGO DISTRICT
Faiza A. Mohammed

FDR: District Fisheries Officer

Cc. Student

**OFFICE OF THE PRESIDENT****Officer of the President and Internal Security**

Office of the Assistant Chief
Akorian Sub Location
P.O Box 12 - 306053
Kampi ya Samaki.
BARINGO COUNTY
7th January 2010

Eileen J.N Nguthari
Moi University
Family and Consumer Science
ELDORET

REF: APPROVAL TO UNDER TAKE RESEARCH AT KAMPI YA SAMAKI
(Lake Baringo)

Reference to your letter dated 13th November, 2009 requesting for approval on research study you are informed that your request has been accepted by this office.

I look forward for a report of your findings once you have completed the research.

Any further assistance shall be given.

William B. Chebii

