

**THE FISHERY RESOURCES MANAGEMENT AND ITS
IMPACT ON PEOPLE'S LIVELIHOODS: A CASE OF
UKEREWE ISLANDS IN LAKE VICTORIA, TANZANIA**

By

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award of a master Degree in Public Administration.

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CERTIFICATION

The undersigned certify that they have read and hereby recommend for acceptance by the University of Dodoma dissertation entitled “*The Fishery Resources Management and Its Impact on People’s Livelihoods*” in partial fulfilments of the requirements for the master degree of Public Administration of the University of Dodoma.

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Date.....

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DEDICATION

I dedicate this study to my lovely husband Barnabas Rutainduka Mwililiza.

ABSTRACT

This research has aimed at examining the fishery resources management and its impact on people's livelihoods in Ukerewe district. The general objective was to examine the nature of fishery resources management and its impact on people's livelihood in Ukerewe island. The study employed descriptive survey design method using qualitative and quantitative investigations. Data were collected through Interviews and survey methods, whereby interview guide and questionnaire were used to solaced information from fishing communities especially the fishermen such as the fish trader, fish producer and the fish processor. Also, the district administrators were involved and data were analysed qualitatively and quantitatively. Sampling for obtaining villages and respondents involved strata, purposive and random sampling techniques. The study found that two management practices are undertaken, Such as, planning and controlling to ensure sustainable fishing. Fishing community was involved appropriate but not compromise the interest of both the fishery resources and the economics of the fishing community. Also there exists confusion of who is a supreme controller of the fishery resources activities. The confusion could lead into failure to manage the fish resources and balance the practices to ensure the fishing community economic objectives are not negatively affected.

The study recommends that Government should improve communication system in the local Government organisations, national policy and promote people's participation in performing their duties especially on fishing industry.

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LIST OF ACRONYMS AND ABBREVIATIONS

- BMUS - Beach Management Unit
- EMEDO - Environmental Management and Economic Development
Organization
- SPSS - Statistical Package for the Social Sciences

CHAPTER ONE

INTRODUCTION AND BACKGROUND

1.1 Introduction

Fishery resources are important resources in Tanzanian economy in terms of food supply and generation of foreign exchange through exports. Fishing as an economic activity does not only generate incomes for the households but also creates employment to a significant proportion of people living around lakes and seashores. FAO (2003) states that, Small-scale fisheries support a wide range of livelihood, benefits for fishers, their families, fish traders and the wider community. They can also act as a 'safety net', providing a source of income when other employment opportunities are limited. It is common to find the improvement of fishermen's incomes as an objective of fisheries management systems, especially in the case of developing countries (Lawson, 1984). Indeed, the problem of low fishing incomes (in Canada) provided the initial impetus for Scott Gordon's pioneering work in fisheries economics. Yet, it remains very difficult to find cases where such an objective has been attained. The purpose of this research was to examine the fishery resources management and its impact on people's livelihoods in Tanzania with special attention on Ukerewe Islands in Lake Victoria as the main source of the problem. The chapter explained the background of the research problem, statement of the study, purpose of the study, objectives of the study, research questions, significance of the research study, and scope of the study.

1.2 Background of the Problem

The problem of the livelihood standard is a global case with some 1.3 billion or nearly a quarter of the world population characterized as poor, living on less than \$1 a day (UNDP, 1997). Although this is a global problem the vast majority of the people living at a low standard of life are found in the continent of Asia, South America and Africa (World Bank, 1996). Some 800 million of them are hungry or malnourished (FD, 1998). Most of them have limited access to information, to productive assets or to the market. Poor livelihood is not only manifested in low monetary income and consumption but includes poor health and education and high risk and vulnerability and essence of voiceless and powerlessness among the poor (World Bank, 1999).

The Sub-Saharan region is the most affected with an average of 45 to 50 percent of the region's populations living below the poverty line. This is much higher proportion than in any other region of the world except South Asia (World Bank, 1999). Generally poor livelihood is a result of many and often mutually reinforcing factors including lack of productive resources to generate material wealth, illiteracy prevalence of diseases, natural calamities such as drought, floods and manmade calamities such as wars. Tanzanian poor livelihood is wide spread, deep and is predominantly a rural phenomenon where about 87 percent of the poor population lives (Kulindwa, 2001).

In Tanzania, Lake Victoria has supported a growing fishery industry over the last decade producing an average annual catch of 500,000 tones consisting mainly of Nile perch, Nile Tilapia, Rastri Neobola, Argentea and other minor species in that

order of significance (Maembe, 1997). In 1990's, as a result of a package of economic policies, the sector experienced rapid growth of industry processing of Nile perch fillets mainly in response to the European Union export market opportunities, generating increased earnings in the industry (Medard, 2001). However, the full impact on the welfare of the fishing communities has remained largely unestablished.

Medard (2001) points out that the Lake Victoria fisheries include various actors and activities. It involves fish filletters and exporters, boat builders and boat owners, fisheries, fish processors, fish traders, development planners, policy makers, fishery resources managers, researchers and allied communities. However for the sake of this study for that reason no single activity can be treated above the biological, economic, cultural and political consideration are essential in understanding livelihood of fishery communities in the lake Victoria and how of these factors influence each other and finally the fish production, markets, distribution and consumption.

Yongo (2005) argues that, peoples residing in the catchments of the lake and other millions living in other parts of the country benefit directly or indirectly in the form of food or income from Lake Fishery. The lake is also an important source of domestic water, industrial and small scale agriculture. It is also an important transport corridor between major towns around the lake and a number of villages, settlements, beaches and numerous Islands.

Mbilinyi (2005) explained that the lake's vast economic opportunities for the people living riparian to it and beyond would lead one to expect that people living around the lake enjoy improved livelihoods that communities located a far from the lake. In addition to these economic opportunities, the fishery of the lake has undergone a rapid expansion of the fish processing industry. From these opportunities it indicates the growing of development. Fish export earns the country valuable foreign exchange. The processing industry offers employment opportunities to the people, the export market also increase the price of fish and income of the fishermen.

Kulaya (2006) cautions that there has been a growing concern that despite the increase earning that has a cured from growth of industry for over a decade, fishers have remained among the poorest section of the community, degradation of fishery resources food security and declined of livelihood standard of the people living around the fishery resources and this cause a researcher to examine the nature of fishery resources management and their impact on fishing communities around lake Victoria in Tanzania.

1.3. Statement of the Problem

Fisheries are an important sector in the Tanzanian economy in terms of food supply and generation of foreign exchange through exports. Fishery as an economic activity does not only generate incomes for the households but also creates employment to a significant proportion of people living around lakes and seashores. In short it provides a source of livelihood to a significant proportion of the population. Mbilinyi (2005) states that Lake Victoria fishery is an important sector in Tanzania economy in supplying food to people, employment and income to the nation,

estimates indicates that each year about 400000-600000mt of fish is landed, valued a between US\$ 300 and US\$ 500 million. Despite the increased earning that has been accrued from the growth of industry for over a decade, fishing communities remained among the section of the community subject to low living with malnutrition diseases, and degradation of fish resources hence endangering food security and poor health status. Onyango (2007) states that despite the fact that lake Victoria fishery contribute to the nation economy, 71.5% of fishing communities still suffer from poverty. From this argument the researcher sought to examine the nature of fishery resources management and its impact on fishing communities around lake Victoria (Ukerewe) in Tanzania.

1.4 Research Objectives

The current study attempted to address the general objective and three specific objectives which are mentioned below;

1.4.1 General Objective

The main objective of the study was to examine the nature of fishery resources management and its impact on the fishing communities of Tanzania.

1.4.2 Specific Objective

From the general objective, the study was specifically intended;

- i. To examine the management practice of fishery resources in Ukerewe Island
- ii. To assess the impact of fishery resources on livelihood of fishing community in Ukerewe Island
- iii. To examine challenges facing fishery resources towards improved livelihoods of fishing community in Ukerewe Island.

1.5 Research Questions

In the course of addressing the set of objectives above, the study was guided by the following research questions;

- i) What are fishery resources management practices in Ukerewe Island?
- ii) What are the impacts of fishery resources on people's livelihood in Ukerewe Island?
- iii) What are the challenges facing fishery resources management towards improved people's livelihood in Ukerewe Island?

1.6 Significance of the Study

The study expected to come up with the following advantages not only to researcher but also to other stakeholders like government, educational institutions and general public. It will promote awareness to the administrators to enhance fishery resources management and control mechanism. Moreover, it will generate knowledge towards understanding on how fishing communities can use fishery resource in a good manner to ensure protection and sustainability of the fish resources. Furthermore, the study will provide evidence based data that are necessary in helping further development of research activities basing on the subject.

1.7 Scope of the Study

The study was conducted in Ukerewe district. The reason behind conducting the study in the island was that it is surrounded by fishery potential that is necessary for improving livelihood. The main scope of the study was be the nature and mechanisms of fishery resources management to examine the one who is dominance in the fishery process, to assess the impact of fishery resources to livelihood of

fishing communities and lastly to examine the challenges facing fishery resources management towards improved livelihood of fishing communities.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This part covers theoretical and empirical literature relevant to the study of the fishery resources management and their impact to fishing communities around Lake Victoria in Tanzania. It intensified the research topic through information from library studies which includes internet materials, published and unpublished materials and different books. The reviewed literatures provide a clear image of the study. They focus from global, regional and national perspective concerning the fishery resources management, impacts of fishery resources and challenges facing fishery resources management.

2.2 Definition of Key Terms

Definitions of important terms to the study are presented in order to make the readers and academicians, to have an understanding on those vocabularies. Those terms are Fishery Resources and Livelihood.

2.2.1 Fishery Resources

Fisheries resources are among natural resources that are known as renewable resources, i.e. those resources whose stocks can be continually replenished. However, these can also be exhaustible depending on how they are exploited (FAO, 1997). A fishery resource is defined generically as a system composed of three interacting components: the aquatic biota, the aquatic habitat, and the human users of these renewable natural resources. Each of these components influence how the fishery performs (Robert, 2005), Understanding the entire system and its parts is often essential to successful management of a fishery. Fish are a common pool

resource, meaning that it is difficult to exclude users and that exploitation by one user reduces the resource availability for others (Ostrom, 1999). Common pool resources are found when a system of individual property rights is insufficient for sustainability or too costly to implement (Bromely, 1991). Furthermore, in many cases, especially in long-distance fisheries and in developing countries, they are effectively an open access resource, meaning that a system of property rights is completely absent and thus the fish can be caught by anyone. When common pool resources are valuable and open access, overexploitation is inevitable because users have no incentive to conserve when the fruits of such conservation can simply be taken by another user (Hannesson, 2008). Therefore, the administrators should enhance fishery resources management to control mechanism.

2.2.2 Livelihood

According to Chambers and Conway (1998) a livelihood comprises the capabilities, assets (including both material and social resources) and activities required for a means of living". A livelihood is sustainable when it can cope with and recover from stresses, shocks and maintain or enhance its capabilities and assets, both now and in the future, without undermining the natural resource. A livelihood is made up of the capabilities, activities and assets (including both material and social resources) that contribute to a means of living. Livelihoods are influenced by policies, institutions and processes, and are affected by external factors such as shocks and trends (e.g. natural disasters and changing climate conditions (Carney, 1998).

Livelihoods are also about creating and embracing new opportunities. While gaining a livelihood or attempting to do so, people may, at the same time, have to cope with

risks and Uncertainties. Such as erratic rainfall, diminishing resources, pressure on the land, changing life cycles and kinship networks, epidemics either with new such as HIV/AIDS, chaotic market, increasing food prices, inflation, national uncertainties, together with new emerging opportunities, influence how material and social resources are managed and used and on the choice people make (Ellis, 2000)

2.3 Theoretical Review

The study was pegged on growth model theory of Basic Resources Theory. Theory is an ordered set of assertions about a generic behaviour or structure assumed to hold throughout a significantly broad range of specific instances (Sutherland, 1976). A theory may be viewed as a system of constructs and variables in which the constructs are related to each other by propositions and the variables are related to each other by hypotheses (Bacharach, 1989). These statements indicate the importance of relationship building in explaining how and why specific phenomena will occur. Sometimes how and why and specific predictions are condensed into the expression 'adequate explanation', which implies that unless an explanation can predict, it is not considered adequate (Hunt, 1999). According to John (1991) basic resources theory is the growth model which insists that economic growth depends on the presence, availability of goods and reliable, magnitude of basic natural resources within a particular area or economic regions. The development resources attract investment capital to these areas and increase income and employment. John (1991) argued that the mere availability of resources in rural areas does not mean economic development, only when there is high technical manpower to harness them. .

Robert (1980) considering Basic Resources Theory as the strategy of the firm. Robert (Ibid) defined strategy as the match an organization makes between its internal resources, skills, opportunities and risks created by its internal environment. Resources basic theory suggests that the resources possessed by a firm are the primary determinants of its performance, and these may contribute to a sustainable competitive advantage of the firm (Hoffer, 1978). According to Barney (1991) the concept of resources includes all assets, capabilities, organizational processes, firm attributes, information, knowledge, controlled by a firm that enable the firm to conceive of and implement strategies that improve its efficiency and effectiveness (Barney, 1991). Resources are inputs into the production process. They include items of capital equipment, skills of individual employees, patents, brand names, finance, and so on. But, on their own, few resources are productive. Productive activity requires the cooperation and coordination of teams of resources. A capability is the capacity for a team of resources to perform some task or activity (Grant, 1991).

The resource-basic theory has become one of the most influential and cited theories in the history of management theorizing. It aspires to explain the internal sources of a firm's sustained competitive advantage. The main proposition or argument is that, if a firm is to achieve a state of Sustained Competitive Advantage it must acquire and control valuable, rare, inimitable, and non-substitutable resources (Barney, 2002). This proposition is shared by several related analyses; core competences (Hamel, 1994), dynamic capabilities (Helfat, 2003) and the knowledge-based view (Grant, 1996).

The basic theory arguments was relevant with the research topic, means that in order to improve the people's livelihood the fishery resources must be managed well as a firm so as to achieve a state of sustained competitive advantages. The fishery resource must be the controlled valuable, rare, inimitable and non-substitutable resources. The fishery resources management supposed to involve some procedures for strategy formulation such as to analyze the firm resources-base, appraising the firm capabilities, analyzing the profit earning potential of firm resources and capabilities, selecting a strategy and extending and relevance to the proposed upgrading the firm pool resources and capabilities (Robert, 1991).

Yet the Resources Basic Theory has also been extensively criticized for their weaknesses. The implication of this resources based theory for strategic management are unclear for two reasons, first the various contribution lack a single integrating frame work. Second, little effort has been made to develop the practical implications of the theory (Porter, 1990). The Resource-Basic Theory, by contrast, can be seen as an "inside-out" process of strategy formulation. We start by looking at what resources the firm possesses. Next, we assess their potential for value generation and end up by defining a strategy that will allow us to capture the maximum of value in a sustainable way. From this explanation a resources basic theory was being considered in the field study so as to encourage the fishery resources management to use the internal resources to improve the national development strategy in order to improve the livelihood of the people living around fishing areas.

2.4 Empirical Review

The practicability of fishery resources management and their impact to people's livelihoods has been studied by a number of researchers and academicians. The below studies are among the studies explaining how fishery resources management relates to impacts of people's livelihood.

2.4.1 Global Overview on Fisheries Resources and Livelihood of People

Fisheries are an important part of the livelihoods of millions of people around the world. They provide a source of food, employment and income. For many poor families, fishing is a way of reducing their vulnerability to risks by supplementing and diversifying their incomes. They also provide a 'safety net' for the poor when other economic opportunities or food sources are limited (FAO, 1980). Further, inland fisheries are of particular importance to the rural poor accounting for about 15% of total global employment (FAO, 2000). In southern lowlands of Laos, 80-90% of the households involved in fishing contribute 30% of rural household income (Lorenzen, 2000), In Northern Nigeria, around 42-70% of rural households who are dependent of fishing contributes 24-28% of their income (Neiland, 1994). These figures illustrate that fishing can be closely integrated in livelihood strategies of rural households.

Well managed small scale inland fisheries could generate wealth and sustainable economic growth in reservoirs. Such reservoirs have been referred to as "bank in the water" (Dugan, 2007). Dugan (Ibid) mentioned that fish are non consumptive water users and their cultivation could be more productive; however, planners often give little recognition to freshwater fish production. Some has suggested that inadequate and exaggerated fish production statistics might be some of the reasons for the low

priority in policies, leading to the allocation of national development resources away from fisheries (Dugan, 2007).

Further economic analysis evaluated, more deeply, how far a fishery contributes to the livelihood of displaced communities and the improved understanding of the importance of fisheries. In Nepal, nearly half of the economically active population (47.8%) were illiterate and about only 25% were just literate (Adhikary, 1995). The successful adoption of cage culture farming by displaced communities has also been responsible for major social developments with regard to education of the children in the families. This has been brought about as a result of financial security and fishery stability, and the community endeavouring to better itself. Almost all the children of the fishing community receive some form of education, unlike in many rural communities in Nepal. Fisheries play an important role in the economy in terms of nutrition, employment and income generation. For example in Bangladesh, the World Bank and the Bangladesh Centre for Advance Studies (1998) state in their publication “Bangladesh 2020”, that 80% of the population’s animal protein comes from fish. Despite the fact that the fishing industry accounts for only 8% of agricultural GDP, its employment potential is considered vast. It is estimated that the sector fully employs approximately 1.5 million people and provides part-time employment for an additional 11 million (World Bank, 1998)

2.4.2 The Role of Fisheries Resources in Africa.

The Meghna Estuary (1998) Study estimates the population living in the costal marine villages at the end of the 20th century at 7.3 million. According to the same source, in these areas fishing is the main income earning activity for 350,000 households and 96,000 boats are operated y 350,000 fishermen. On the one hand

these are members of poor Muslim communities in search of new income opportunities, while on the other hand wealthy individuals have invested in marine fisheries sector once it become a profitable business (Alam, 1996)

Furthermore fisheries are considered carefully planned to bring some economic benefits to the local community on employment, living, revenue and trade, without the requirement of high investment cost and avoiding socio-cultural problems to enhance livelihood of the fishery communities (FAO, 2000). Mahatane (2001) argue that developing country such as Africa earns net forex between 0.4 to 2.3 billion dollars per year. He further argued that the forex earned has facilitated development of social service provision which has improved the livelihood of communities compare to ten year ago.

2.4.3 Overview on Fishery Resources in Tanzania

Tanzania is one of the greatest fisheries nations in Africa, according to FAO (2004) it is ranking in the top 10 countries in terms of total capture fisheries production. Fisheries Sector is one of the economic sectors in the country. The sector is a source of animal protein, income generation, employment and recreation among others. The annual fish production is about 341,065.99 tones. In addition, the sector contributed about 1.4 percent to the GDP (National Statistics Bureau; 2010), 10 percent to the national foreign exchange earnings and about 27 to 30 percent to the total animal protein intake in the country. The sector employs more than 177,527 full time fishermen and about other 4 million people earn their livelihoods from the Fisheries Sector (Fisheries Statistics, (2011). On average (for the last five years 2005 – 2010) fish and fishery products exports from Tanzania earned the country an average of USD 195.17 million.

According to URT (2000) fisheries in Tanzania if is well managed can become one of the option for contribution into revenue and employment for the development of local community livelihood and spread the economy and development of other sectors such as agriculture and job creation in both rural and urban areas. Moreover it offered entrepreneurial opportunities for local communities for the development of their livelihood.

Maembe (1997) pointed out that lake Victoria fishery ensured that local communities surrounding it and the peripheral areas participate in development and that they benefit from the management in order to develop their livelihood. Communities benefited through direct exploitation of the fishery resources, trade and related activities such as positive experience encourage local people to participate in management practices that reinforce the long term viability of the lake. This also preserves resource for their long term livelihood.

Finally the contribution of fishery resources in the community livelihood is the form of revenue carried in these countries. Massete (2000) explained that the revenue for developing countries contributed by fisheries range from 0.3 to 20%. Moreover if fisheries be well managed could be one of the main instruments for regional development as it stimulates new economic activities along the water bodies. It will provide positive good living, trade, infrastructure and stimulates other sectors. However uncontrolled and unplanned fishery resources can lead to negative effects means poor livelihood improved.

Carney (1998) argued that at analytical level, livelihoods promotion can be captured by analyzing the interactions between livelihood resources, vulnerability and institutions. While Blaikie (1994) states that resources such as tangible and

intangible resources are combined for promotion of livelihoods. In promoting the livelihoods, however, it is important that local government has to arrange how to facilitate the resources. It is for this reason that Berkes (1997) in the context of natural resource management, argue that have to deal with how to control access to the resources and how to institute rules among users to solve the potential divergence between individual and collective rationality.

2.4.4 Legal Framework and Policy Environment of Fishing Industry in Tanzania

The National Fisheries Sector Policy and Strategy Statements (1997) aims at transformation of the Fisheries Sector into sustainable commercial fishing, aquaculture, and processing for both domestic and foreign markets, and compliance to domestic and foreign market requirements while conserving the environment. The objective of the

National Fisheries Policy is to develop a robust, competitive and efficient Fisheries Sector that contributes to food security, growth of the national economy and improvement of the well being of fisheries stakeholders.

However, over a period of a decade, there have arisen new challenges which are facing the sector. This has now necessitated the need for the review of the policy. Such challenges include need for effective management of Exclusive Economic Zone (EEZ) resources, promotion of fisheries export trade, curbing Illegal, Unregulated and Unreported Fishing and Trade (IUU) and development of aquaculture industry to reduce pressure on capture fisheries. Various acts have been enacted for effective policy implementation and regulation of the industry

The first one is that of Fisheries (Act No. 22 of 2003) which supports fisheries administration, development of the industry, aquaculture development, management and control of the fishing industry. It also regulate the use of various fishing gears and methods in minor and major water bodies; issues of quality assurance and standards of fish and fishery products.

Second Act is concerned with Marine Parks and Reserves (Act No. 29 of 1994)

The Act promotes sustainable management of critical marine resources and habitats through community participation. In addition, the act aims at promoting protection and conservation of fisheries resources and aquatic environment for the sustainability of the resources.

The third act deals with Deep Sea Fishing Authority [Act No. 3 of 1998 (CAP 388)] where it provides for the establishment of the Deep Sea Fishing Authority (DSFA), which is responsible for regulating licensing, fishing, monitoring and surveillance in the Exclusive Economic Zone (EEZ).

Last but not least is Tanzania Fisheries Research Institute (Act No. 6 of 1980)

This Act provides for the establishment of the Tanzania Fisheries Research Institute (TAFIRI) which is responsible for conducting fisheries research activities in the country so as to provide advice to the government and the private sector accordingly.

2.5 Research Gap

Literature review revealed that previous studies focused more on looking at how Lake Victoria fisheries contribute to the national economy. Kulindwa (2010) expressed that it is important to measure the level and extent of the contribution of Lake Victoria fisheries activities to the national economy. The measurement should focus on the well-being of all people involved in the fishery related chain of activities. This is providing qualitative and where possible quantitative dimensions of this contribution focused on how the industry affects other micro-economic activities.

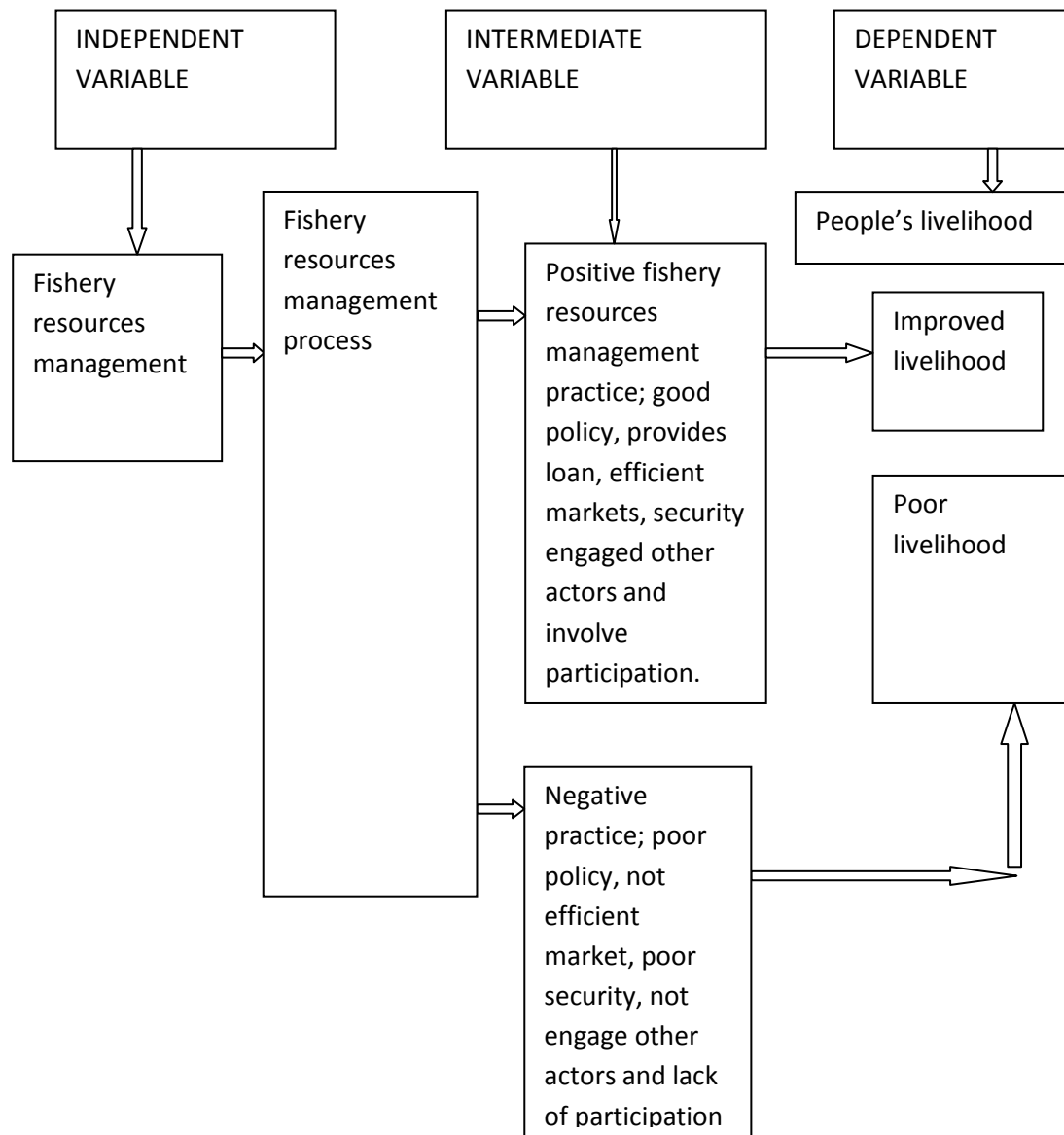
This study consequently intends to examine the nature of fishery resources management in practice and challenges facing the fishery industry in order to improve the fishing communities. Also Carney (1998) explained that at analytical level, livelihoods promotion can be captured by analyzing the interactions between livelihood resources, vulnerability and institution.

2.6 Conceptual Framework

Conceptual frame work is a simplified systematic conceptual structure of interrelated element in systematic form such as narrative statement or mathematical equation. It describes relationships between and among concepts and variables (Krishnaswam, 2006). The presence of best fishery resources management style in Lake Victoria provides positive impact to people's livelihood living riparian to it. It indicates that fishery resources depends much on good management practice on fishery resources to the local peoples who are engaged in fishing activities by providing basic services that affect peoples in their area of jurisdiction.

In fishery resources management process government should provide loans, security, markets, good policy by involving people's participation and other actors to meet their interest in order to improve the people's livelihood. From the growth model in resources based theory economic growth depends on the presence of basic natural resources within a particular area and high technical manpower to harness them. An administrative arrangement is the main forces of economic growth and development within the region of the country (John 1991). Therefore, administrators supposed to provide good environment to fishery industry so as to achieve the positive impact to people's livelihoods

Figure 1: Relationship between Fishery Resources Management and People’s Livelihood



Source; Developed by Researcher, 2015 Based on Literature Review

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

The present expresses the research methodology which gives justifications and the details of how the current research was carried out. The important components discussed include research design, area of study, target population, sampling procedure and data collection methods as well as data analysis.

3.2 Research Design

A research design can be regarded as an arrangement of conditions for collection and analysis of data in a manner that aims to combine relevance with the research purpose. It is the conceptual structure within which research is conducted. It constitutes the blueprint for the collection, measurement and analysis of data (Kothari, 2004). A descriptive design was adopted in this study preferably because it makes enough provision for accurate profile of persons, events, or situations (Saunders, 2007). Quantitative research was used to measure how people feel, think or act in a particular way and it is a research technique that seeks to quantify data and apply some statistical analysis. A researcher used descriptive design so as to make accurate profile of persons, events or situations in the field study. This helped to describe those information in order to facilitate an assessment of fishery resources management and their impact to people's livelihoods.

3.3 The Study Area

The study area refers to the all the items under consideration in any field of inquiry constitute (Kothari, 2004). The study area of the field research was in Ukerewe district. The reason behind conducting the study in the island was that, the area is surrounded by fishery potentials and it portrays a typical fishery community in Lake Victoria. The district covers 6400km² of which only 10% of it is a dry land used for human settlement and other activities. While 90% is covered by water. The Islands that are used for human settlement in the district are as follows; Nansio (90km²), Ukara (80km²) , Irugwa (13km²), Bwiro (10km²), Kamasi (5km²) and Sizu (2km²). Based on the information given by Ukerewe district fisheries officer.

3.4 Source of Data

Source of data refers to the several ways of collecting the appropriate data which differ considerably in context of money cost, time and other source at the disposal of researcher (Kothari, 2004). Both primary data and secondary data were being collected to the field research. The primary data was collected through interviews, observation and focus group discussions. Further were secondary data was also collected from TAFIRI library in Mwanza, certain documents like minutes, books, technical reports as well as proceeding of meetings and important decision making taken by fisheries authorities on various occasion were reviewed.

3.5 Sampling Design

Sampling design is a definite plan for obtaining a sampling framework (Kothari, 2004). The study was designed to use stratified sampling techniques because of geographical location of Island within Lake Victoria in Ukerewe district. This enabled to minimize the effects of selectivity, bias and facilitated representation of different groups involved in fisheries. A researcher identified three villages such as Nakatunguru, Msozi and Bwisya, after identification of strata; random sampling was applied for fish producers, fish processors and fish traders while purposive sampling was used for administrators to get the required number of respondents for the study.

3.6. Sample Size

Sample size is a segment of the population selected to represent the population as a whole which should be representative and allow the research to make accurate estimate of the thought and behaviour of the larger population (Kumar, 2005). Kothari (2004) provides a simplified formula to calculate sample sizes for stratified population. In the field study three villages (sampling unit) were involved, such villages were Nakatunguru, Msozi and Bwisya while purposive sampling for administrative officers was used to isolated or indentify one (1) District Executive Director, four (4) Political leaders and one (1) District planning officer, one (1) Head of natural resources department, five (5) natural resource officers in ward level, one (1) community development officer in district level, five (5) community development officers in ward level, two (2) interest groups and five (5) Ward officers.

Formula given,

$$N=n (N/P)$$

Where n is the sample size, N is sample of stratum size, and P is population.

$$\text{Nakatunguru} = (50/370)*75 = 10.1$$

$$\text{Msozi} = (150/370)*75 = 30.4$$

$$\text{Bwisya} = (170/370)*75 = 34.5$$

$$10+30+35=75$$

Purposive sampling included 25 respondents.

The sample size for the field study included 100 respondents. Researcher preferred to take a sample of 100 respondents so as to be effective and efficient in carrying the study and provide reliable and flexible results with confidence. It was this size where the study reached without failure either in terms of costs or time.

Table 3. 1: Respondent Profile

S/NO	CATEGORY	NO OF RESPONDENTS	TYPE OF INFORMATION
1	District Executive Director	1	Provide information on how fishery resources management planned to promote livelihood of fishery communities basing on policy, institutional based and resources based
	Political leaders	4	
	District planning officer	1	
	Head of natural resources department(district level)	1	
	Head of natural resources department(ward level)	5	
	Community development officer (district level)	1	
	Interest groups (NGO'S), EMEDO	2	
	And Forum sdy	2	
	Community development officer (Ward level)	3	
	Ward officers	5	
	Fishermen	75	Provide information of poverty issues countered in their activities, earning and spending from fishery income with impacts in social, economic and cultural related impacts.
	Total	100	

Source; Developed by Researcher 2015

3.7 Target Population

Target population refers to the total of items about which information is desired, is either constructed by a researcher for the purpose of his study or may consist of existing list of population (Kothari, 2004). The population of Ukerewe district is estimated to be 345,147 for male and 169,279 for female with total of 514,426 peoples (PBS, 2012). The target population will include fishing community operating in Lake Victoria region for three villages in Ukerewe Island; Nakatunguru, Bwisya, Msozi and government administrators. The targeted population for the study comprised 370 people's participating in the fishery resources operation which includes fish producers, fish traders and fish processors and 25 government administrators.

3.8 Data Collection Techniques

Data collection technique defined as a way of collecting the appropriate data required to the researcher (Kothari, 2003). During the study collection of primary data from the field were used various research instruments to obtain the necessary information that was addressed the intended research questions. The detail of the techniques that was used includes interview, observation and Focus Group Discussion.

3.8.1 Interview

Is the one of most important sources of field study information (Yin, 2003). A researcher used interview to gather information from the various respondents. The first group of respondents was the district officials at the district and ward level. The district officers included in this group were a District Executive Director, Political leaders, and District planning officer, Head of natural resources department,

community development officer, interest groups and Ward officers. These provided information on how fishery resources management planned to promote the peoples livelihood. The second group of respondent were fishermen. These were provided information of poverty issues countered in their activities, earning and spending from fishery income.

3.8.2 Observation

Observation implies the collection of information without interviewing the respondents. The information obtained relates to what is current happening and is not complicated by either the past behaviour or future intentions or attitudes of respondents (Kothari, 2004). Non-participant observation was employed during the study. The researcher observed daily life and life setting in the fishing community to enrich the information for the study. This method was employed as it is concerned with noting events, behaviours and meanings attached to those behaviours. It assumed that behaviour was purposive and expressive of values and beliefs. Data was collected in the natural setting which was considered as good method of non-verbal data collection.

3.8.3 Focus Group Discussion

Focus group discussion implies the collection of information by way of investigators use group of respondents to discuss several issues which are appropriate data required by the researcher (Kothari, 2003). Focus group discussion also was conducted and discussed issues related to the study. Researcher used 20 peoples in group discussion were 16 fishermen and 4 leaders from interest group involved. The advantage of this method was to provide check and balance to the issues being discussed hence validates data and information collected through other methods.

3.9 Data Quality Control

Data quality control is basically concerned with validity and reliability of the research instrument.

3.10 Validity

Validity is an extent to which differences found within a measuring instrument reflect true differences among those being tested (Bryman, 2003). To ensure validity the researcher performed a pre-test of the instruments to be used by using the pilot method where a set of questionnaire distribution was conducted for 15 respondents from administrative officers and fishers group and the data will be analyzed by the help of SPSS.

3.11 Reliability

Reliability is defined as the extent to which the scores from an assessment are consistent, across repeated administrations of the same or similar test to the same group or population. The more reliable test scores are, the greater their freedom from errors of measurement (Renaissance Learning 2011). Thus, reliability of data was taken into consideration by the survey, demonstrating that the operation of a study such as the data collection can be repeated with the results (De Vaus, 2001). This was achievable through Triangulation methods. Different questions were constructed cutting across the information required, hence the reliability of data.

3.12 Data Analysis

In recent times, several researchers have recognized the need to integrate both quantitative and qualitative methods in their data analysis (Burke and Onwuegbuzie, 2004). This is reasonable while having respondents with busy schedules and limited

timetable. Data collected in this study were analyzed both qualitatively and quantitatively. This means quantitative data were analyzed in terms of frequencies and cross tabulation, while qualitative data was descriptive and narrative required interpretation to determine the extent of the differences in behaviour, Data from questionnaire based on views and opinions were summarized, tabulated and percentages were calculated and information were put together in a tabular form, others were given detailed explanations. Data from interview were expressed by themes in the form of statement describing fishers and official's officers interviewed perceptions and opinions. Jennings (2001) explained that the SPSS package enable the researcher to enter and store the data, engaged to statistical analysis, generate graphs manage research reports and utilize retrieval strategies. In the study the responses from interviews and focus group discussion were analyzed using the SPSS programme for window version 17 while the research findings data was established to get the accurate information.

3.13 Data Organization

The information obtained from the different respondents was well organized from raw data to information, from information to fact and from the fact to knowledge. The knowledge was expressed with statistical degree of confidence. The study was ensuring that collected data and information was processed scientifically before carrying out the analysis. The study was coding arrangement to create codes and scale from responses, which was summarized and analyzed.

3.14 Data Presentation

Pictorial presentation using dummy tables were used for presentation of data. This was simplified and clarified research data. The purpose of each table or graph was to ease the summarization, interpretation and communication of the meaning of the data.

CHAPTER FOUR

DATA PRESENTATION, ANALYSIS AND DISCUSSION

4.1 Introduction

The study adopted a descriptive research design and used quantitative approaches for data measurement. Then stratified random and purposive sampling was used to identify a sample size of 100 respondents. Data were collected through questionnaires, interview and focus group discussion. A data response rate of 85% was achieved. Data were analysed by the use of SPSS and presented through frequencies and mean tables. This chapter presents, firstly characteristics of the respondents such as gender, level of education possessed, marital status and kind of business engaged. Secondly, the management practice of fishery resources, thirdly impact of fishery resources to livelihood of fishing community and lastly challenges facing fishery resources towards improved livelihood of fishing community.

4.2 Demographic Characteristics of Respondents

The research used two groups of respondents, the fishing community and the authority or leaders. Thus the demographic information is presented based on these groups. This part present, for the fishing community, the gender profiles, marital status, education, level of involvement and type of activity in the fishing industry, averages for family size, dependants and experience with fishing activity, then presents, for the authority, the officials' position, gender, and education level. Similar items from both groups are presented parallel.

4.2.1. Gender Profile, Positions and Level of Involvement of Respondents

The communities profile (Table 4.1) shows that majority (93.8%) of them (involved in fishing activities) are males, where 86.9 percent (of males) are involved in the fishing activities on full time basis. Females are the minority (6.2%) and that all (100%) of them are involved with fishing activities on full time basis. In addition, majority (87.7%) of the fishing community is involved with such activities on full time basis. The observed level of involvement suggests that the fishing community does not involve so much in other livelihood activities than fishing activities. Thus, fishing is the main livelihood activity supporting their basic human needs.

Table 4. 1: Relationship between Gender and Involvement of Respondents (community)

			Level of involvement		
			Part time	Full time	Total
Respondent's gender	Male	Count	8	53	61
		% within Respondent's gender	13.1%	86.9%	100.0%
		% of Total	12.3%	81.5%	93.8%
	Female	Count	0	4	4
		% within Respondent's gender	.0%	100.0%	100.0%
		% of Total	.0%	6.2%	6.2%
Total	Count	8	57	65	
	% within Respondent's gender	12.3%	87.7%	100.0%	
	% of Total	12.3%	87.7%	100.0%	

Source: Field Data, 2015

For the leading group, the sampled majority (70%) were males (refer table 4.2) of whom political leaders, heads natural resources and ward officers were the majority

(20% each). The community development officers are mainly occupied (75%) by females. The distribution thought heavily dominated by males, however, it did not adversely influence with the findings. Sex of respondents was needed in order to ensure that both men and women take part in the present study.

Table 4. 2: Relationship between Gender and Position of the Official Respondent

		Respondent gender			
		Male	Female	Total	
Position of the official	DED	Count	1	0	1
		% within Position of the official	100.0%	.0%	100.0%
		% of Total	5.0%	.0%	5.0%
Political Leaders		Count	4	1	5
		% within Position of the official	80.0%	20.0%	100.0%
		% of Total	20.0%	5.0%	25.0%
Head Natural resources		Count	4	1	5
		% within Position of the official	80.0%	20.0%	100.0%
		% of Total	20.0%	5.0%	25.0%
Community Development officer		Count	1	3	4
		% within Position of the official	25.0%	75.0%	100.0%
		% of Total	5.0%	15.0%	20.0%
Ward Officers		Count	4	1	5
		% within Position of the official	80.0%	20.0%	100.0%
		% of Total	20.0%	5.0%	25.0%
Total		Count	14	6	20
		% within Position of the official	70.0%	30.0%	100.0%
		% of Total	70.0%	30.0%	100.0%

Source: Field Data, 2015

4.2.2 Marital Status of Respondents

Knowing the state of marital status among respondents involved in this study was very important because the study was set to seek opinions and views from people of

different status hence gain more insights on their level of involvement and their experiences in the fishing activities. Data from the study area indicates that, Marital status involvement (Table 4.3) in fishing activities shows both groups (married, single, divorced, widows and widowers) are involved on full time basis with the fishing activities. For all groups, higher levels of involvement suggests that even for widows and widowers, their main economic supports is the fishing activities. Therefore, government should improve the fishery sector in order to promote the economy of fishing communities.

Table 4. 3: Relationship between Marital status and Involvement

			Level of involvement		
			Part time	Full time	Total
Marital status	Married	Count	7	49	56
		% within Marital status	12.5%	87.5%	100.0%
		% of Total	10.8%	75.4%	86.2%
	Single	Count	1	3	4
		% within Marital status	25.0%	75.0%	100.0%
		% of Total	1.5%	4.6%	6.2%
	Divorced	Count	0	4	4
		% within Marital status	.0%	100.0%	100.0%
		% of Total	.0%	6.2%	6.2%
Widow or Widower	Count	0	1	1	
	% within Marital status	.0%	100.0%	100.0%	
	% of Total	.0%	1.5%	1.5%	
Total	Count	8	57	65	
	% within Marital status	12.3%	87.7%	100.0%	
	% of Total	12.3%	87.7%	100.0%	

Source: Field Data, 2015

4.2.3. Level of Education of Respondents

Data regarding education pattern of respondents were collected in order to help in assessing their education in relation to how they may involve in fishing activities.

The fishing community levels of education (Table 4.4) show that the majority

(81.5%) are primary school certificate holders whom participate in fishing activities on full time basis. The holders of secondary and vocational training certificates are the minority (18.5%). From the data presented above, it appears that the findings of the present study did comprise responses from respondents with different levels of education which was an important variable for researcher to consider contextual limitations and self awareness of respondents regarding the topic at hand.

Table 4. 4: Relationship between Education and Involvement (Fishing community)

			Level of involvement		
			Part time	Full time	Total
Education level	Primary Certificate	Count	6	47	53
		% within Education level	11.3%	88.7%	100.0%
		% of Total	9.2%	72.3%	81.5%
	Secondary certificate	Count	1	6	7
		% within Education level	14.3%	85.7%	100.0%
		% of Total	1.5%	9.2%	10.8%
	Vocational training certificate	Count	1	4	5
		% within Education level	20.0%	80.0%	100.0%
		% of Total	1.5%	6.2%	7.7%
Total	Count	8	57	65	
	% within Education level	12.3%	87.7%	100.0%	
	% of Total	12.3%	87.7%	100.0%	

Source: *Field Data, 2015*

For the leading (authority) group (Table 4.5), a significant number (40%) are secondary school certificate holders who happen to be all men. The majority (20% in 30%) of females were high school certificate holders. All bachelor degree holders were males and 66.3 percent of Master degree holders were males too. Thus the authority or leading group has a proportionate mix of education with education background sufficient to undertake simple to complex issues of fishing activities.

Table 4. 5: Relationship between Education and Gender of Respondents

(Authority or leaders)

		Respondent gender			
		Male	Female	Total	
Education level	Secondary	Count	8	0	8
		% within Education level	100.0%	.0%	100.0%
		% of Total	40.0%	.0%	40.0%
High school		Count	2	4	6
		% within Education level	33.3%	66.7%	100.0%
		% of Total	10.0%	20.0%	30.0%
Diploma		Count	0	1	1
		% within Education level	.0%	100.0%	100.0%
		% of Total	.0%	5.0%	5.0%
Degree		Count	2	0	2
		% within Education level	100.0%	.0%	100.0%
		% of Total	10.0%	.0%	10.0%
Masters		Count	2	1	3
		% within Education level	66.7%	33.3%	100.0%
		% of Total	10.0%	5.0%	15.0%
Total		Count	14	6	20
		% within Education level	70.0%	30.0%	100.0%
		% of Total	70.0%	30.0%	100.0%

Source: *Field Data, 2015*

4.2.4 Type of Activity in a Fishing Sector Carried Out by Fishing Community

It was important to establish the gender issues in various activities related to improvement of fishery resources management in the study area. This is because one could not talk of how fishery resources managed if there is no engagement at all. Data from the study area obtained through questionnaires as indicated in (Table 4.6) denotes that, majority of responses (53.8%) fisherman are males and are the majority of the fishing community involved in getting fish from the lake while some of respondents engaged in Fish factory 4.6% are males and 1.5 are female. Also respondents engaged in Fish Traders 21.5% are males and 4.6% are female while Fish Processors majority 13.8%. This data is realistic given the fact that males can withstand the harsh or hostile lake environment which does not encourage women to participate in fishing activities which lead to not improve the life standard of the fishing communities.

Table 4. 6: Relationship between Gender and Fish Activity of Respondents

		Respondent's gender			
		Male	Female	Total	
Fish activity involved	Fisherman	Count	35	0	35
		% within Fish activity involved	100.0%	.0%	100.0%
		% of Total	53.8%	.0%	53.8%
Fish Factory Agent		Count	3	1	4
		% within Fish activity involved	75.0%	25.0%	100.0%
		% of Total	4.6%	1.5%	6.2%
Fish trader		Count	14	3	17
		% within Fish activity involved	82.4%	17.6%	100.0%
		% of Total	21.5%	4.6%	26.2%
Fish Processor		Count	9	0	9
		% within Fish activity involved	100.0%	.0%	100.0%
		% of Total	13.8%	.0%	13.8%
Total		Count	61	4	65
		% within Fish activity involved	93.8%	6.2%	100.0%
		% of Total	93.8%	6.2%	100.0%

Source: *Field Data, 2015*

4.3. Findings

The findings are presented based on specific research objectives. Thus the first specific objective intended to examine the management practice of fishery resources. Secondly, the assessment of the impact of fishery resources to livelihood of the fishing community and third examining the challenges facing fishery resources towards improved livelihoods of the fishing community. To achieve the above research objectives, three research questions were devised to guide data collection. The first question was; what are fishery resources management practices in Ukerewe Island? What are the impacts of fishery resources to people's livelihood in Ukerewe Island? and What are the challenges facing fishery resources management towards improved people's livelihood in Ukerewe Island? The data for this study were collected through questionnaires; interviews; and focused group discussions. All the three data collection instruments had questions that were devised in a way that enabled the researcher to collect data that could achieve the objectives of the study.

4.3.1. The Management Practice of Fishery Resources

There were two categories of information which helped to describe The Management Practice of Fishery Resources involved in the study. They were seen to be very important because they helped to get clear understanding regarding the management practices of fishery resources undertaken in Lake Victoria. These were mainly planning of fishery resources management and controlling of fishery resources management in Lake Victoria.

The study picked two components of management practice of Fishery Resources in Ukerewe Island for reasons that best explain the purpose of the study. It was the

focus of this study to understand if the practices are known to the fishing community. This was thought to be of strategic importance because it helped to evaluate the capacity of understanding by different stakeholders become or do not become instrumental in the management Practice of Fishery Resources in the study area. Responses from the study shows that, 100% of the respondents such as fishing communities, leading group and Focus group discussion stated that two practices undertaken regularly to ensure protection and sustainability of the fish resource. Those practices are planning and controlling.

The major comment that can be raised out of statement presented above is that the practices are known to the fishing communities. This suggests for the need to promote skills and knowledge of what they can do to improve the fishery resources management practices in their area. “Even though there are only few stakeholders involved in Beach Management Unit to share views with the district administrators on how the fishery resources management practices can be taken”. Nevertheless, this was found to be a policy issue. According to Marine Parks and Reserves (Act No.29 of 1994) concerned with to promote sustainable management of critical marine resources and habitants through community participation.

4.3.1.1 Planning of Fishery Resources Management in Lake Victoria

In planning aspect the researcher inquired to find out the specific department or personnel responsible for planning on the fish resources activities. It was needed in order to ensure that management of fishery resources practices planned accordingly to achieve the intended goals and formulated policies and programmes to achieve the national goals. Findings from the leading group (Table 4.7) indicated that there is

divided perception of the supreme responsible unit or personnel who planned the fish resources activities in Lake Victoria. Majority (85%) of the leading group argue that the district council is the supreme unit that planned all activities of fish resources in Lake Victoria. Such activities involved allocation of appropriate fish nets, kind of sailing boats, payment rates of national revenue income and security activities. Other (30%) leaders reported that BMU is the supreme organ of the fishery resources planning activities in Lake Victoria and still others (45%) hand this responsibility to the fishing community. While the majority of the fishing community and focus group discussion indicated the District council controls fishery resources activities.

Table 4. 7: Controller of Fish Resource Planning Activities

	Yes		Not listed	
	Count	Row N %	Count	Row N %
District council controls fishery	17	85.0%	3	15.0%
BMU control fishery	6	30.0%	14	70.0%
Fishing community controls	9	45.0%	11	55.0%

Source: Field Data, 2015

The data presented above suggest that there exists a confusion of who is a supreme controller of the fishery resources activities. During interview session one district education officer was quoted remarking that;” *there was no supreme unit that planned all activities of fish resources in Lake Victoria, a fishermen could decide kind of sailing boats to use in the fishing activities*” The confusion could lead into failure to manage the fish resources and balance the practices to ensure the fishing community economic objectives are not negatively affected in the lake. However,

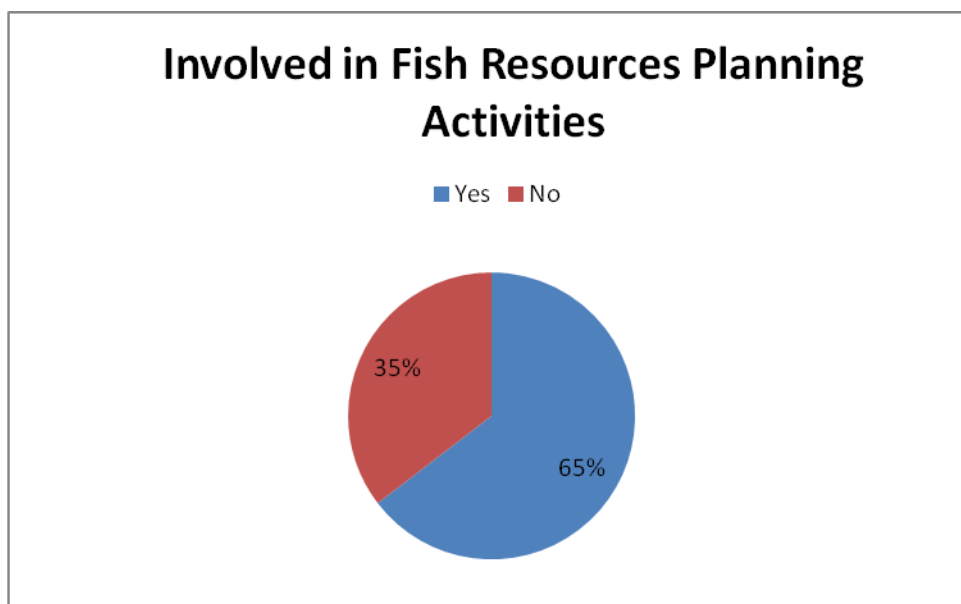
response from focus group discussions and the fishing community indicated that the supreme unit that planned all activities of fish resources is the district council.

On the one hand, dominance of District council to controls fishery resources was expected given that it is their primary responsibility to ensure that utilization of fishery resources in their jurisdiction is discharged under their coordination. In improving the livelihoods, however, it is important that local government has to arrange how to facilitate the resources. It is for this reason that Berkes (1997) in the context of natural resources management, argue that have to deal with how to control access to the resources and how to institute rules among users to solve the potential divergence between individual and collective rationality. Nevertheless, it is also legal and institutional requirement that in discharging their responsibilities, local government authorities have to engage different actors in order to promote participation and improvement of the well being of the fisheries stakeholders.

Also in planning aspect the fishing community was inquiry on the participation or involvement of the fishing community in fish resources planning activities. Involvement of the fishing community in management process is basically a structured process wherein the processing of desired outcomes among all fishing community is realized. In this regard, the study was concerned with understanding whether fish resources planning activities related to fishing community-needs. This is because the management of fishery resources is not only participation on the fishing activities but also coming together under well defined mechanisms that can effectively utilize commitments of all fishing communities. Data from the study area indicates that majority (64.6%) 42 of the fishing community agree that they are

involved in planning of fishing activities in Lake Victoria (Figure 2). However, the other (35.4%) 23 part of the community reports that they are not involved.

Figure 2: Whether Involved in Fishing Resources Planning Activities (Fishing Community)



Source: Field Data, 2015

Reflecting on the responses above, it is convincing to believe that fishing community were involved in planning of fishery resources activities taking place in the district. During interview session with head of natural resources department in the district revealed that there are involvement of fishing community in planning of fishery activities in their areas through Beach Management Unit that operate in the course of bringing together fishing community towards addressing concerns affecting improvement of fishery resources in the district. Nevertheless, it was learnt that the community could be involved, at an undesirable level to the extent that involvement fails to meet the need of the fishing community.

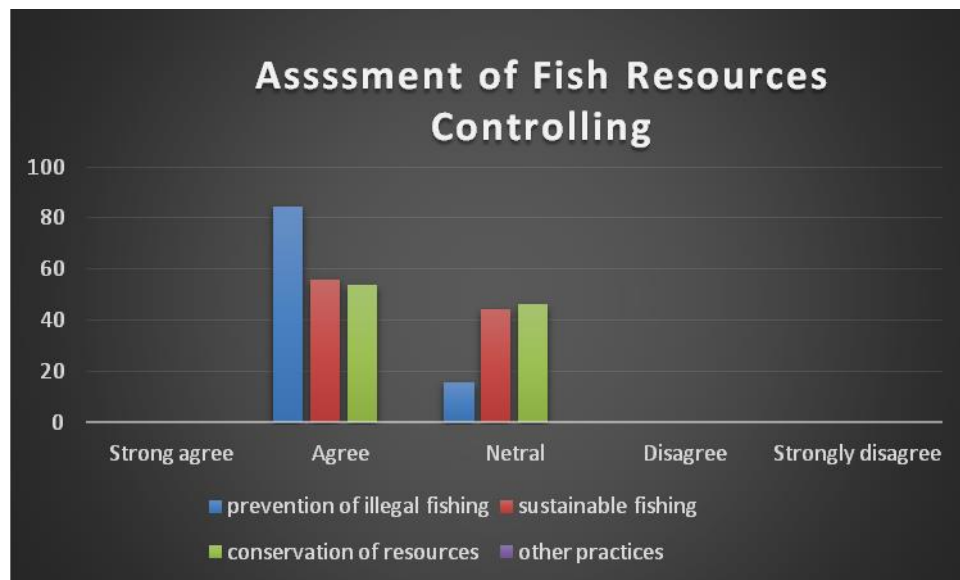
Furthermore, the levels of involvement are not appropriate as highlighted by the focus group discussion who reported that they are involved in planning of fishing activities to a certain extent particularly in BMUs. But BMUs are influenced by the authority. Basic Resources Theory explained fishery resources management supposed to involve some producers for strategy formulation such as to analyze the firm resources base, appraising the firm capabilities, analysing the profit earning potential of firm resources, selecting a strategy and relevance to the proposed upgrading the firm pool resources and capabilities (Robert,1991)

4.3.1.2 Controlling of Fishery Resources Management in Lake Victoria

Another aspect of fishery resources management practices were a researcher based was controlling of fishery resources management in Lake Victoria. Controlling is the management practice undertaken regularly to ensure protection and sustainability of the fish resources. The practice includes prevention of illegal fishing, sustainable fishing and conservation of fishery resources. At this level, it was important to know if the controlling of Fishery Resources Practices is Undertaken Properly. The research work examined from the two groups whether the controlling of fishery activities practices are Undertaken Properly to improve the fishery resources in Lake Victoria. In this regard, it was important to assess this feature because effective management of fishery resources improves the livelihoods of each stakeholder involved in the process and ensure the sustainability of fishery resources in Lake Victoria. Findings from the study area show that majority (84.6%) agree that prevention of illegal fishing is properly done. The community members (above 50%) agree too that sustainable fishing and conservation of resources are all properly done (Figure 3). However, the focus group discussion reported that the

undertaking of these controlling practices is not done to the appropriate level due to corruption and lack of capital. On the other hand, the reaction of the leading group on whether the fish resource controlling practices are done properly shows that, all of them agree these practices are done properly.

Figure 3: Assessment of Fish Resources Controlling (Community)

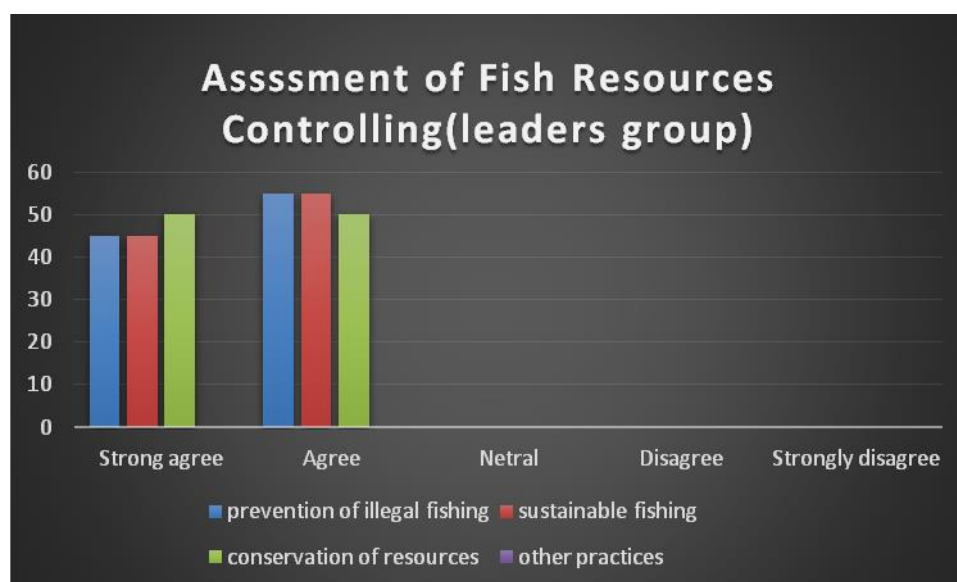


Source: Field Data, 2015

Reflecting on the data presented above, the general comment can be made that there were mixed feeling regarding the properly done of controlling fishery resources practices. This suggests that the under taken of these management practices is not done to the appropriate level. In promoting the livelihood, however, it is important that local government has to arrange how to facilitate the resources. It is for this reason that Berkers (1997) in the context of natural resources management, argue that have to deal with how to control access to the resources and how to institute rules among users to solve the potential divergence between individual and collective rationality Although the leading group had strongly agree of properly done of controlling fishery resources, still this was informative indication that the

leading group protect the ruling power in the district (Figure 4). This was supported by the focus group discussion reported that the undertaking of these management practices is not done to the appropriate level due to corruption in fishery resources sector and policeman especially in the process of controlling illegal fishing in lake Victoria.

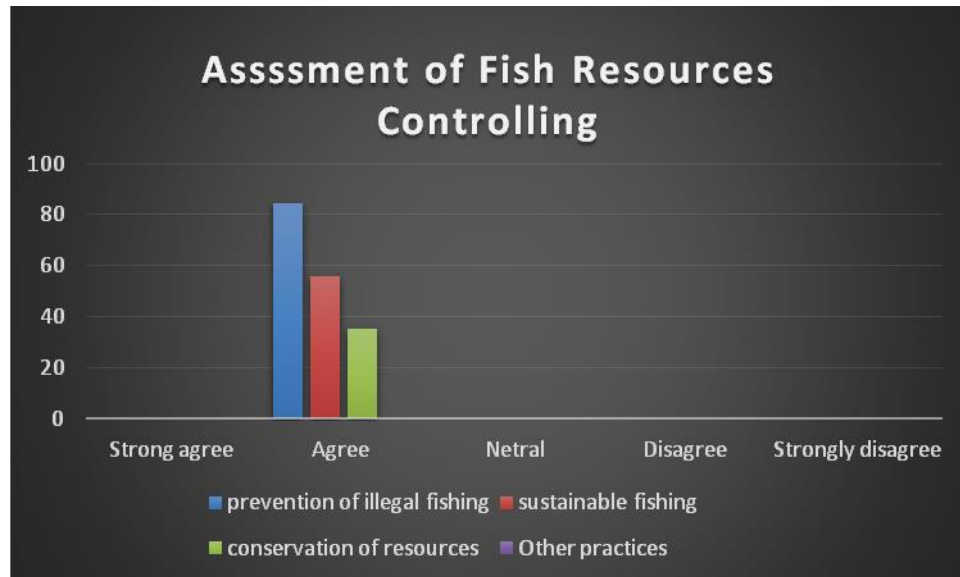
Figure 4: Assessment of Fish Resource Controlling (Leaders)



Source: Field Data, 2015

The fishing community was again assessed whether the fish resources control practices achievement of the economic goals. The concern of this study was to examine how the practices balanced to ensure in the process, there are no adverse or negative impacts on the fishing community. Although wide majority (Figure 3 and 4.) agreed that these practices are properly undertaken by the authorities, findings (Figure 5) show that the same number of fish community respondents (84.6%) agree that prevention of illegal fishing hinders their goals. Also above fifty percent agree that even management practices to ensure sustainable fishing and conservation of fish resources also hinder economic goals of the fishing community.

Figure 5: Assessment of Fish Resources Controlling Hinder their Goals



Source: Field Data, 2015

The data above imply that although the fishery resources control practices are done properly still they are not balanced to ensure in the process, there are no adverse or negative impacts to the fishing community. This view was supported during the group discussion perceptions. In this regards, one fish producer in the discussion was quoted remarking that; *“There are no numerous initiatives at district level that focus to change life of the fishing community instead of taking away and destroyed our fish-nets”*. His emphasis was the need to promote extensive knowlegde to the fishing communities on how controlling of fishery resources practices can imoprove their life standard. The National Fisheries Sector Policy and Strategy Statements (1997) also emphasis at transformation of the Fisheries Sector into sustainable commercial fishing, aquaculture, and processing for both domestic and foreign markets, and compliance to domestic and foreign market requirements while conserving the environment.

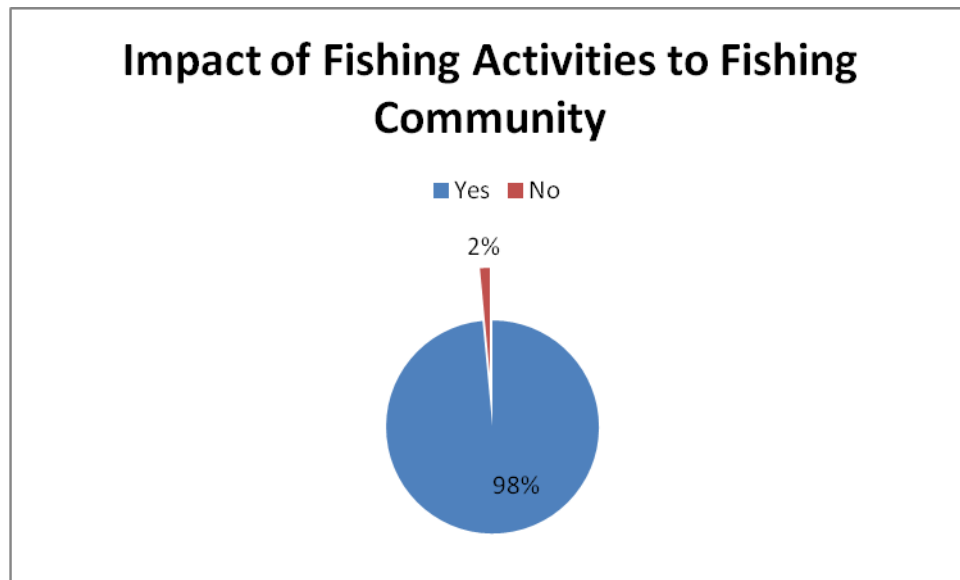
4.3.2. The Impact of Fishery Resources on Livelihood of Fishing Community

The second specific objective of the presented study intended to assess the impact of fishery resources to the livelihood of the fishing community. The objective focused on understanding the extent to which fishery resources can be reliable resources hence be improved so as to enable people's livelihoods in the fishing communities in Lake Victoria and in Tanzania at large. In so doing, the study attempted to examine the positive impact of fish resources to the life of fishing communities and the contribution of fishery resources to the fishing communities.

4.3.2.1. Impact of Fishing Activities on the Fishing Community

Much that Fishery resources exist, it was the concern of the present study to assess the opinion of respondents as to whether consideration of fishing activities could be of benefit or not. The two groups (fishing community and leading or authority) were interrogated on this. Generally speaking (Figure 6) indicated below there was positive response which indicates that the fishing community (98.5%) is impacted positively by the fishery resources. The wide acceptance to the impact may explain how important the fishery resource is important for the livelihood of the community. The focus group discussion acknowledges that above a half of their income is attributed to the fishing activities.

Figure 6: Impact of Fishing Activities on Fishing Community



Source: *Research Findings, 2015*

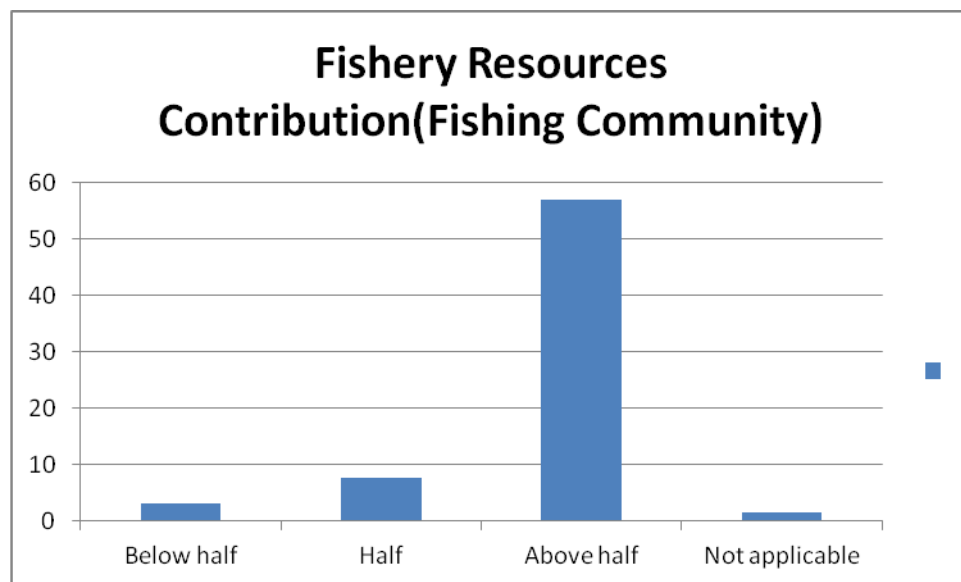
The data presented above suggests for necessity of fishery resources as found to impact positively the fishing community. Mbilinyi (2005) states that Lake Victoria fishery is an important sector in Tanzania economy in supplying food to people, employment and income to the nation. The statement above was a sample of responses from interview and focus group discussions which indicated the importance of fishery resources to the fishing community. The view of the fishing community is widely supported by the leading or authority group.

Thus, acknowledgement of the impact of the fishery resources to the livelihood of the community suggests that the two groups are aware of the importance of the resource. A strategy to manage the fishery resource can thus be implemented if the two groups closely work together to ensure the sanity, sustainability and security of the resource.

4.3.2.2 Contribution of Fishery Resources to Fishing Community

The study focused on understanding the extent to which fishery resources can contribute in economic activities in the fishing communities. Findings (Figure 7) show that the majority (87.7%) of community members receive economic contribution amounting to above a half of their total gains.

Figure 7: Fishery Resources Contribution



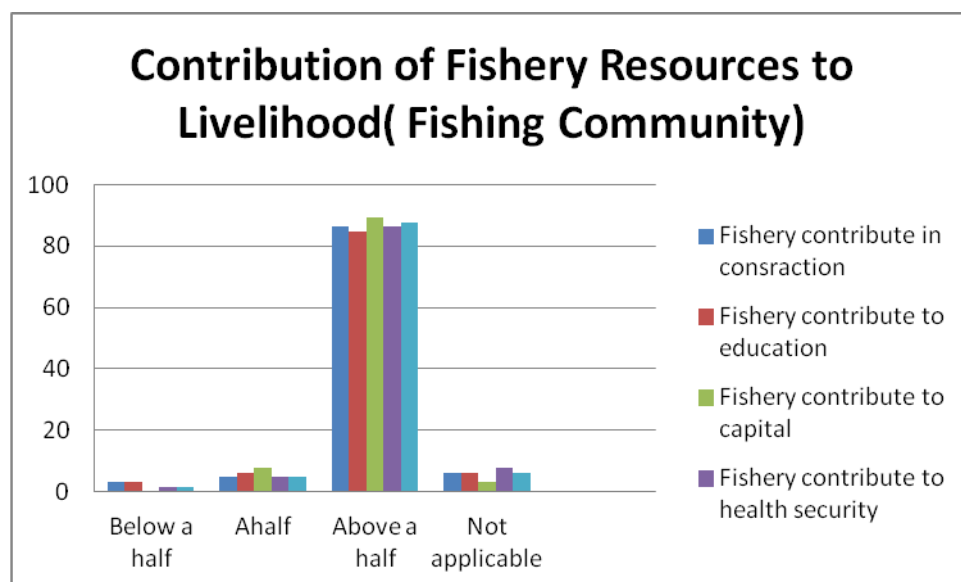
Source: Field Data, 2015

The data presented above indicates that the resource provides the largest portion of the total economic gain. Further economic analysis evaluated, more deeply, how far a fishery contributes to the livelihood of displaced communities and the improved understanding of the importance of fisheries. In Nepal, nearly half of the economically active population (47.8%) were illiterate and about only 25% were just literate (Adhikary, 1995). The successful implementation of fishing activities by displaced communities has also been responsible for major social developments with regard to education of the children in the families. This has been brought about as a

result of financial security and fishery stability, and the community endeavouring to better itself.

The study also focused on understanding the significant contribution of the fishery resource to the variety of social and economic aspects. This being the case that, poor livelihood is not only manifested in low monetary income and consumption poor health, education, high risk, vulnerability, essence of voiceless and powerlessness among the poor (World Bank, 1999). The findings show that the significant contribution above half of the fishery resource (Figure 8) was on many aspects which includes; construction, education, capital, health, security, food security and other social contributions such as contributions on water, security, funerals, dowry, and local unions.

Figure 8: Contribution of Fishery Resources to Livelihood



Source: Field Data, 2015

This observation implies that major aspects of their lives are enabled and facilitated by contributions from the fishery resources. Responding to the question which

aimed at understanding the achievement earned through the income gotten from fishery resources, One respondent from focus group discussion was quoted making the following remarks: *“Whether the fishery resources was the major aspect in income source, the fishing community still suffer from poverty in their lives.”* He emphasized that, local government authority has the role to pray in order to improve the people’s livelihood in the fishing communities. John (1991) explained that the mere availability of resources in rural areas does not mean economical development, only when there is high technical manpower to harness them. Such contribution may also suggest that great care should be taken to avoid endangering both fishery resources as a result of overharvesting or endangering community livelihoods if the management practices are not balanced to ensure sustainable consumption of the resources and at the same time avoiding hurting livelihoods.

4.3.3. The Challenges of Managing Fishery Resources Practices

Realization of potential contribution effective management of fishery resources was seen to be subject of addressing challenges that seemed to be potential stumbling blocks. Closer examination in the present revealed four categories challenges namely: Resources Based, Legal Based, Market Based and Policy Related Challenges. It was the concern of present study to identify and examine challenges that did or potentially hindered the management of fishery resources practices to promote people’s livelihood in the fishing communities.

4.3.3.1 Resources Based Challenge

In the purpose of the study, Resources based challenges such as lack of capital and lack of fishing facilities were selected to get views of the participant regarding the influence of these challenges on fishery resources management. The basis for this

may perhaps affect much the fishing sector on its daily activities as the findings indicated that (Table 4.9) that 53.8% of respondents lack of fishing facilities while 40% of them lack of capital .This observations implies that respondents affected much on lack of capital and fishing facilities to run the fishing business. This statement supported by data from the findings on Table 4.6 when the researcher focused on type of activity in fishing sector, the majority (53.8%) were involved in getting fish from the lake lather than fish factory(6.2%), fish traders(26.2%) and fish processors(13.8%) activities. This implies that fetching fish from the lake need low capital and any fishermen can manage to practice in small scale lather than to invest on fish factory agent need high capital.

4.3.3.2 Legal Based Challenges

In fishery resources management legal based challenges was another challenge that did or potentially hindered the management of fishery resources practices to promote people's livelihood in the fishing community. Legal based challenges were the respondent indicates were poor security and regular confiscation of fishing facilities and fish by the authority normally on reasonable grounds. Data from the findings (Table 4.8) indicates that 41.5% suffer more on poor security while 8% of respondents suffer more on confiscation of fishing activities.

From the above presented data that legal based challenges hinder the fishing activities and promote poor fishing environment. One respondent from the fishing community was quoted making the following remarks.”*Our fishing activities are in danger especially on their settlements, gear machines and their fish nets due to danger people's comes and take away their properties.* While focus group

discussion emphasis that government have responsible to improve fishing security regarded to the geographical area in Ukerewe Islands.

4.3.3.3 Policy Related Challenges

Fishing communities identified policy related challenges are challenges that affect their fishing activities. Lack of leader's consideration on the pressing fishing communities' needs, unfair taxation scheme and corruption of the leading group which lead to unfair treatment of individuals. Table 4.8 indicates that corruption scored 7.7% of the respondents, no consideration from leaders scored 3% while unfair taxation scheme scored 2% of the respondents.

From the findings above the national fisheries policy and strategy statements (1997) which aims at transformation of the fisheries sector into suitable commercial fishing and develop a robust competitive and efficient sector should be implemented to overcome these challenges and improve the management of fishery resources.

4.3.3.4 Market Based Challenges

Finally fishing communities identified Market based challenges as challenges that affect their fishing activities (Table 4.8). Fish price fluctuation influence the income of the fish catch, decrease of fishery resource and fishing activities sometimes bare. Data from the findings show that 6.2% of the respondent indicates fish fluctuation, 3.1% indicates decrease of fish resources while 1.5% of respondents indicates bare of fishing activities.

The findings imply that there is the problem in searching markets for their fishes which influence the fish catch. The focus group discussion stated that "*Fish are perishable commodities which need a permanent market to enable the fishermen to*

sell their fishes before rotten.” One of fishermen also added that *” increase of fish catch means low price on their markets’.*

Table 4. 8: Challenges of Managing Fishery Resources Practices (community)

	Yes		Not listed		Not applicable	
	Count	Row N %	Count	Row N %	Count	Row N %
Lack of facilities	35	53.8%	28	43.1%	2	3.1%
Poor security	27	41.5%	36	55.4%	2	3.1%
Lack of capital	26	40.0%	36	55.4%	3	4.6%
Corruption	5	7.7%	57	87.7%	3	4.6%
Fishing activities sometimes bared	1	1.5%	62	95.4%	2	3.1%
Lack of business education	27	41.5%	36	55.4%	2	3.1%
Decrease of fishery resources	2	3.1%	61	93.8%	2	3.1%
Confiscation of facilities and fish	8	12.3%	55	84.6%	2	3.1%
No consideration from rulers	3	4.6%	61	93.8%	1	1.5%
Fish price fluctuation	4	6.2%	61	93.8%	0	.0%
Taxation	2	3.1%	63	96.9%	0	.0%

Source: Field Data, 2015

Inference can be drawn from the above presented data that Resources based challenges experienced much as compared to legal, markets and Policy related challenges. The general opinion regarding of this study was what could be done to make the management of fishery resources successful and be able to generate results which improve the people’s livelihood in the fishing communities. During interview with one of political leader in Ukerewe district council, the study learnt that challenges facing effective management of fishery resources were not necessarily

resources based. *“In my opinion, there are leadership problems which result into poor planning of what should be done”*. He further emphasized that legal and policy context provides a clear room for better planning and controlling of fishery resources practices, therefore, the problem is upon getting a kind of leadership which can lead them in a proper direction. It is through proper policy where even financial resources can be well managed and allocated in accordance with what is agreed in focus group discussion.

CHAPTER FIVE

CONCLUSIONS, SUMMARY AND RECOMMENDATION

5.1 Introduction

This chapter provides the conclusion of the study which basically is related to the objectives of it. Also it gives recommendation which obtained from the findings of the research. The study explored the fishery resources management and their impact to people's livelihoods. This sector was chosen to represent other sectors on which resources management practices to ensure all sectors related issues went in an excellence manner. Tanzania is among the countries which believed that if resources management were made effectively, particularly that of fishery sector the impact to people's livelihood could be improved.

In order to conduct the study, Ukerewe Island was identified as focal geographical unit for integrating multiple fishery resources management. Ukerewe Island represents other fishing communities of the country where different fishing activities and national policies are implemented.

5.2. Summary of the Study

The researcher sought to examine the nature of fishery resources management and their impact to the fishing communities in Ukerewe Island. Three research questions were formed to guide the study. These were: How appropriate are fishery resources management practices in Ukerewe Island? , What are the impacts of fishery resources to livelihood of people in Ukerewe? and what are the challenges facing fishery resources management towards improved livelihood of people in Ukerewe?

The study was considered necessary as findings could promote awareness to the administrators to enhance fishery resources management and control mechanism. Also raise awareness to people on understanding how they can use fishery resource in a good manner to improve their life standard. The study also aimed to inform various researchers to involve in deep research to analyze different ways of exploiting fishery resources with positive impact to people's livelihoods. The study also provide knowledge development to add in the existing literature regarding the topic and the study will cultivate interest for individual and organizations to do further studies in the same topic.

The research instruments used in this study comprised interviews. The study sample comprised 100 respondents, 25 Ukerewe District officers and 75 fish producers, fish processors and fish traders. During the study collection of primary data from the field used various research instruments to obtain the necessary information that addressed the intended research questions.

5.3 Summary of the Findings

The results were based on the people's perception both from the fishing communities and public administrators, on how the fishery resources management practices to ensure that fishery resources contribute social and economic aspects to fishing communities. Whether various challenges facing fishery resources were provided. The findings bring out important issues that need on attention in order to improve the fishery resources and the people's livelihood to fishing communities. The general findings suggest that there was a closely relation between the fishery resources management and their impact to people's livelihood. This is because the respondents were dissatisfied not only the impact of fishery resources but also the

effective of district administrative to bring the positive effect of fishery resources to fishing communities. Specific findings based on the research objectives are indicated in the following paragraphs.

5.3.1 The management practices of Fishery Resources

It has stated in previous chapters that the fishery management practices include planning and controlling activities. In planning activities the leading group indicated that there is divided perception of the supreme responsible unit or personnel who planned the fish resources activities in Lake Victoria. Majority (85%) of the leading group argue that the district council is the supreme unit that planned all activities of fish resources in Lake Victoria. Other (30%) leaders reported that BMU is the supreme organ of the fishery resources planning activities in Lake Victoria and still others (45%) hand this responsibility to the fishing community. While the majority of the fishing community and focus group discussion indicated the District council controls fishery resources activities. That the confusion could lead into failure to manage the fish resources and cause negative affected in Lake Victoria. Nevertheless, it was learnt that fishing community were involved in planning of fishery resources at an undesirable level to the extent that involvement fails to meet the need of the fishing community.

Controlling of fish resources also is the aspect of fishery resources management practices, the findings show that majority agree that controlling of fish resources are all properly done while the focus group discussion reported that controlling of fishery resources not done properly due to corruption. Not only that, the findings also revealed that the fishery resources control practices still they are not balanced to ensure in the process.

5.3.2 The Impact of Fishery Resources to Livelihood of Fishing Community

The results also based to assess the opinion of respondents as to whether consideration of fishing activities could be benefit or not. The findings revealed that, generally speaking there was benefit on fishery resources. Either the significant contribution was above half of the fishery resources. Thus implies that great care should be taken to avoid endangering both fishery resources and community livelihoods.

5.3.3 The Challenges of Managing Fishery Resources Practices

It was the concern of present study to identify and examine challenges that did or potentially hindered the management of fishery resources practices to promote people's livelihood in the fishing communities. Closer examination in the present revealed four categories challenges namely: Resources Based, Legal Based, Market Based and Policy Related Challenges. Data from the findings indicated that Resources based challenges experienced much as compared to legal, markets and Policy related challenges. The respondents also emphasized that legal and policy context provides a clear room for better planning and controlling of fishery resources practices, therefore, the problem is upon getting a kind of leadership which can lead them in a proper direction. It is through proper policy where even financial resources can be well managed and allocated in accordance with what is agreed in focus group discussion.

The general opinion regarding this study was what could be done to make the management of fishery resources successful and be able to generate results which improve the people's livelihood in the fishing communities.

5.4 Conclusions of the Study

The importance of fishery resources management, its practicability in all parts including fishing communities and administrators in Ukerewe Island has been observed. As a result that two management practices must be undertaken in proper way to ensure the fish resources continue to exist and benefit both the fishery resources and the economics of the fishing community. Although there were many challenges on fishery resources management government has a great role to improve the fishing sector to cause positive impacts of people's livelihood.

5.5 Recommendations

Field findings, made the study to come out with a lot of recommendations, however the following are some of the main important issues for the consideration and attentions to policy makers, leaders, fishing communities and other stakeholders from the central and local government. These recommendations are as follows as illustrated below;

5.5.1 Recommendation for Action

Based on the major findings of the study, the following recommendations are made by the research

- 1) Government should improve the communication system in the local Government organisation especially in the district council in order to overcome the problem of confusion among leaders of who is supreme controller of the fishery resources in Lake Victoria. Due to that the confusion could lead into failure to manage the fish resources and balance the practices to ensure the fishing community economic objectives are not negatively affected

- 2) The government has to improve the fishery resources policy to overcome challenges facing fishery resources and cause positive impacts of people's livelihood. According to URT (2000) fisheries in Tanzania if is well managed can become one of the option for contribution into revenue and employment for the development of local community livelihood and spread the economy and development of other sectors such as agriculture and job creation in both rural and urban areas. Moreover, it offered entrepreneurial opportunities for local communities for the development of their livelihood.
- 3) It was confirmed by all respondents that, fishery resource contribute economic and social aspect to a level beyond half of the expenses of the aspect. Therefore the Ministry of Natural Resources and Tourism should provide entrepreneurship trainings to fishing communities that will help them to change their knowledge towards the level of involvement in the fishing activities. This in turn will help to improve the contribution of fishery resources in economic and social aspect.
- 4) From the findings, fishing community is involved appropriate in the fishery resources management. But this is not undertaken to compromise the interest of both the fishery resources and the economics of the fishing community. Therefore, the government should improve the appropriate way of involving the fishing community in fishery resources management to improve the people's livelihood in fishing communities.

5.5.2 Recommendation for Further Studies

Since it is not easy to cover all areas, the following should be considered for the future studies;

- i) From the findings, the planning of the fishery resources activities and controlling of fishery resources activities are appropriate but not undertaken to rationalise or compromise the interest of both the fishery resources and the economics of the fishing community. Either, fish resource practices, negatively impact fishing community economic goals. The extent to which the fishing community economic goals are impacted and the way how these goals are impacted by fish resources practice need to be further investigated.
- ii) Also, findings revealed that in the course of planning and controlling the fish resources management, fishing community is involved. The extent to which the fishing community is involved and how it is involved or should be involved in planning and controlling the fish is another area for further study.
- iii) From the findings the level of contribution of fishery resources to fishing communities indicates that there was high demand of fishing which lead to high level of fish exploitation. Therefore strategy or methodology that will ensure sustainable consumption of fishery resources in Lake Victoria should be another area for further study.

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APPENDICES

APPENDIX I

LETTER TO BE RESPONDENTS

Dear respondent,

RE, REQUEST TO RESPOND TO THE QUESTIONNAIRES

My name is Diana zakaria sonno, a student at Dodoma University, pursuing a master of public administration (MPA). I am carrying out research on fishery resources management and its impact on people's livelihood. A case of Ukerewe Island in Lake Victoria in Tanzania. I kindly request you to provide me with information. Would you read each question carefully and answer them accordingly, comment where you think it is necessary to do so. It will be treated as confidential and used for academic purpose only.

Thanks.

SONNO DIANA, Z.

APPENDIX; II

Focus Group Discussion Questionnaires

(Tick the right option or fill the right answer in the spaces provided)

1. Management practices of the fishery resource at Ukerewe Island includes:

- (i) Planning of fishery resources activities
- (ii) Controlling of fishery resources activities
- (iii) Others [please specify].....

2. The management practices are undertaken properly

Management practice	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Planning of fishery resources					
Controlling of fishery resources					
Others					

3. The management practices hinder achievement of income generating goals

Management practice	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Planning of fishery resources					
Controlling of fishery resources					
Others					

4. Have you been involved in planning and controlling the fishery resources management process?

Yes No

If not, why? -----

5. Fishery resources contribute to my income by

A. A quarter B. A half C. above a half

6. Are there any impacts of fishery resources in your life?

Yes No

7. What have you achieved through the income gotten from fishery resource.

Achievement item	Fishery resource contribution		
	Below a half	By a half	Above a half
Construction			
Education			
Capital			
Health			
Food security			
Social contributions			

8. Are there any challenges facing fishery resources practice?

Yes No

If yes what are they? -----

9. Is it necessary for the government to improve the fishery resources management?

yes No

If yes, comment on that -----

END

THANK YOU FOR YOUR COOPERATION

APPENDIX III

Fish Producers, Fish Processors and Fish Trader's Questionnaires (Fishermen)

(Tick the right option or fill the right answer in the spaces provided)

PART; A

1) Sex

female, male

2) Marital status;

Married

single

Divorced

Widowed

3) What is your level of education?

No schooling primary secondary Tertiary

University other (specify) -----

4) What is your level of involvement in fisheries?

part time full time

5) What fish activities are you engaging in?

Fish producer Factory agent Fish trade Fish
processing

Other (specify) -----

PART; B

6) Management practices of the fishery resource at Ukerewe Island includes:

- i) Planning of fishery resources activities
- ii) Controlling of fishery activities
- iii) Others [please specify].....

7) The management practices are undertaken properly

Management practice	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Planning of fishery resources					
Controlling of fishery resources					
Others					

8) The management practices hinder achievement of income generating goals

Management practice	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Planning of fishery resources					
Controlling of fishery resources					
Others					

9) Have you been involved in planning and controlling the fishery resources management process?

Yes No

If not, why? -----

10) Fishery resources contribute to my income by

A quarter A half C. above a half

11) What have you achieved through the income gotten from fishery resources

Achievement item	Fishery resource contribution		
	Below a half	By a half	Above a half
Construction			
Education			
Capital			
Health			
Food security			
Social contributions			

12) Are there any impacts of fishery resources in your life?

Yes No

If yes, what are they? -----

Are there any challenges facing fishery resources practice?

Yes No

If yes what are they? -----

Is it necessary for the government to improve the fishery resources management?

yes No

If yes, comment on that -----

END

Thank you for your cooperation

APPENDIX IV

Government Officers and Political Leaders Questionnaire

(Tick the right option or fill the right answer in the spaces provided)

SECTION A; BACKGROUND INFORMATION

1. Position of respondent

.....

2. What is your age range?

20-25yrs 26-30yrs 31-35yrs 36-40yrs Above

41 yrs

3. Sex

a) Male (b) female

4. Highest education level attained

Ordinary level Advanced level Diploma Degree Post
graduate

Others (specify) -----

SECTION B;

5) Who is dominant in fishing process management?

Have you ever been involved in planning and controlling the fishery resources management process?

Yes Not

If not why? -----

Management practices of the fishery resource at Ukerewe Island includes:

- i) Planning of fishery resources activities
- ii) Controlling of fishery resources activities
- iii) Others [please specify].....

6) The management practices are undertaken properly

Management practice	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Planning of fishery resources					
Controlling of fishery resources					
Others					

7) Are there any impacts of fishery resources to the fishing community?

Yes [] No []

8) Are there any challenges facing fishery resources practice?

[] Yes [] No

If yes what are they? -----

Is it necessary for the government to improve the fishery resources management?

[] yes [] No

If yes, comment on that -----

END

Thank you for your cooperation