

### THE MANAGEMENT OF THE FISHERIES SECTOR IN UGANDA:

A case of BMC at Masese beach in Jinja district

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requirement for the award of the degree of Master of

Arts in Public Administration and Management

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### **DECLARATION**

This is to declare that the work presented in this Dissertation is my original work, and to further confirm that to the best of my knowledge the study has never been submitted for any award at any institute or for publication as a whole or as in part.

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### **DEDICATION**

To my beloved Parents Mr. Muzige Haluna and Mrs. Nabayinde Safina, to my dear wife Mukaire Hadijah and my children Babirye Janaat, Kaudha Fatinah, Hassan Hussein, Kiiza Bashir and Safina Hasifa.

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#### **ABBREVIATIONS AND ACRONYMS:**

- BMC ----- Beach Management Committee category,
- FEW ----- Fisheries Extension Workers,
- BMU ----- Beach Management Unit
- FC ----- Fishing Crews
- BO ----- Boat Owners
- BM&R ----- Boat Makers and Repairers
- FP ----- Fish Processors
- FM ----- Fish Mongers
- GM&R ----- Gear Makers and Repairers
- FIRI ----- Fisheries Resources Research Institute
- FAO ----- Food and Agricultural Organization
- FEO ----- Fisheries Extension Officer
- DFO ----- District Fisheries Officer
- MAAIF ----- Ministry of Agriculture, Animal Industry and Fisheries
- LVFO ----- Lake Victoria Fisheries Organization
- BMU ----- Beach Management Unit
- BMCs ----- Beach Management Committees
- DFR ----- Department of Fisheries Resources
- IFMP ------ Implementation of Fisheries Management Plan
- LC ----- Local Council
- FISH ----- Fisheries Investment for Sustainable Harvest

- CIFA ----- Committee on Inland Fisheries of Africa
- UNFAO ----- United Nations Food and Agricultural Organization
- M ----- Managers
- C ----- Chatterers

#### ABSTRACT

The study was conducted at Masese beach in Jinja district one of the areas where fisheries resource management and development are carried out. The study applied a case study design and a sample size of 150 respondents was used. Both primary & secondary methods were applied, which included; In-depth interviews, a selfadministered questionnaire and Observation, while the instruments used included Interview guides, observation guide and a self-administered questionnaire. The Qualitative data generated was edited, coded and themes developed following the study objectives and the results were later analyzed.

The study investigated the extent to which Beach Management Committees [BMCs] have played their roles towards the management and development of the fisheries sector in Uganda, while the specific objectives were: to assess the level of community awareness created by the BMCs in the process of managing and developing the fisheries sector in Uganda, to investigate the extent BMCs have formulated and enforced byelaws in the process of managing and developing the fisheries sector in Uganda, to document the extent BMCs have arbitrated fisheries conflicts as a means of managing and developing the fisheries sector in Uganda, and to establish the challenges BMCs face in the process of managing and developing the fisheries sector in Uganda.

The study revealed that; though fishers share some commonalities, they are not homogeneous due to the varying amount of information especially regarding fisheries management and development. The study further indicated that fishing is mostly conducted by people aged between 18 and 60 years as this is when one is energetic enough to afford fishing. The findings also suggest that fishing is dominated by the; males, the less and non-educated people for deriving a livelihood since they can't get formal employment. Information on several issues is collected and disseminated by the BMCs and used by the fishers and resulting into; community awareness among fishers has been created. BMCs have scored highest in the field of byelaws formulation and enforcement where they have provided a legal framework on most aspects that negatively affect the fisheries sector. Most respondents [66.7%] said that BMCs to a great extent successfully mediated fisheries conflicts which have greatly streamlined the management of fishing industry. The study further revealed that BMCs face the challenges of; lack of adequate resources, some fishers were doubtful of their level of confidentiality by in regard to information, and lack of adequate skills and expertise however, important to note is that BMCs have always addressed these challenges.

Finally, the study recommends several measures including; packaging policies, formulating and enforcing regulations, formulating approaches to fisheries conflicts arbitration and other management options that address these issues at local, national and international level and provision of scientific information and data to guide management decisions. Creating a clear and unambiguous understanding of the roles and functions of BMCs by all parties, changing the fisheries management style through integrating BMC management approach with Communal Area Management Program [CAMP] to strengthen the current fisheries management under the BMC-CAMP management arrangement, intensifying extension in order to get the support of fishers not through coercion, and increasing channels of communication to include; radios, phones, newspapers, magazines, and newsletters, for enhancing nation-wide mechanism for fisher communities to access and utilize information regarding national and local management and development, etc.

#### **CHAPTER ONE: INTRODUCTION:**

This chapter gives the Background to the introduction of Beach Management Committees [BMCs] in the Management and Development of the fisheries sector in Uganda. The Statement of the Problem, the Objectives of the Study, the Scope of the Study, the Significance of the Study, and a Conceptual Framework are given herein.

#### 1.1 The Background to the Study;

The fisheries sector in Uganda is one of the sectors that constitute the Ministry of Agriculture, Animal Industry and Fisheries [MAAIF] and it comprises lake fishery and aquaculture sub-sectors. According to [MAAIF 2003], Capture fishery makes greater contributions towards the national economy and at house hold level. This explains why the capture fishery experiences several management and development challenges and its management is a function of all stakeholders including local communities through the BMC structures currently operating at all gazetted and designated beaches in Uganda in particular and East Africa at large.

Under capture fishery, Uganda is blessed with fisheries resources in its many lakes, rivers and wetlands. The fisheries sector is said to make significant contributions to national goals such as: -

- Poverty eradication and economic growth,
- Provides high quality food i.e. it's a source of protein in the form of fish for about 17 million Ugandans, and

Provides direct employment and incomes for about 300,000 people the majority of whom are poor, and supports a further 1.2 million livelihoods in fisheries dependant house holds [MAAIF-DFR, 2003].

The capture fisheries sector, unlike agriculture is based on hunting wild fish by tens of thousands of fishers who compete for the same resources. These forms of fishing practices can lead to fish depletion, if no management structures and measures are put in place. This is because of the;

- Massive use of illegal destructive gears and methods,
- Fishing in breeding grounds that lead to death of juveniles and brooders, and destroys eggs, and
- Too much fishing effort compared to resource potential [MAAIF-DFR, 2003].

In the past, fisheries management was vested with the central government but without posted fisheries staff. The administration and management was based on a command and control approach which proved inadequate in meeting the needs of the sector [MAAIF-DFR, 2003]. Participation by fisheries communities in resource planning, management and development was either minimal or inexistent and such management approaches had a number of problems including:

- lack of collaborative management leading to poor coordination of activities,
- Non formulation of byelaws and less enforcement of laws and regulations leading to widespread use of illegal gears and methods,

- Limited information collection, dissemination and use, hence inadequate community awareness among the fishing communities & other stakeholders,
- Lack of a continuous system of fish quality and safety assurance,
- Poor and inadequate arbitration of fisheries conflicts and disputes, and
- Lack of adequate monitoring and supervisory mechanisms put in place to guarantee controlled fishing activities, among others [MAAIF-DFR, 2003].

In 1992, the Department of Fisheries separated the duties of extension from law enforcement. This led to the creation of the Fisheries Regulations and Control Unit that was mandated to manage the exploitation of fisheries resources, to facilitate and guarantee the safety and quality of fish, fishery products for food security, and economic development through the implementation of appropriate regulations [Kiiza, 1999]. Fisheries extension has been devolved to the district as part of state commitment to decentralization, as promulgated in the 1995 Uganda constitution.

Under the Local Government Act [RoU, 1997], districts were given considerable powers for revenue collection, managing their resources and in addition, they were given powers to formulate their own byelaws, provided these do not contradict the national laws. However, the 1964 Fish Act contains no rules providing fisheries managers with specific areas to enforce like minimum mesh sizes. Also, the Fisheries Department itself notes..."by current standards, the Act is neither comprehensive enough nor flexible enough to provide for proper management and conservation of fisheries" [MAAIF, 2000:20]. The above made districts to have considerable leeway to act on all fisheries matters to the detriment of the fisheries resources. In 1999, following the widespread incidences of fish poisoning, several districts unilaterally closed their fishery and subsequently resisted the central government demands that the fishery be re-opened. An important tenet in the management of the fish poisoning crisis was the formation of Task Forces at all beaches on Lake Victoria which were responsible for controlling poisoning. These Task Forces have become a permanent feature on Uganda's fisheries management landscape, and many have come to be called Landing Management Committees [LMCs] which were seen as a form of participation for users in resource management [Gonga et al, 2000].

There were Landing Site Committees at landing Sites but despite of this, fishing malpractices were rampant [MAAIF- DFR, 2003]. For example, fish poisoning in the late 1990s by some fishermen led to the establishment of Fisheries Task Forces to curb the menace. Also, on Lake George, Kazinga channel, Lake Edward and Wamala, Fish Rehabilitation Committees were set up to reduce illegal fishing [MAAIF-DFR, 2003]. However, the Gabungas, Task Forces, Landing Site and Fish Rehabilitation Committees were not democratically elected and their functions were not clearly defined and therefore, they were less effective [MAAIF-DFR, 2003].

Before the advent of LMCs, Local fishery leaders, known as Gabungas [Asowa 1990], existed with exclusive community-based beach authority to which fishers reported fishery-related cases, especially in the absence of the DFR staff. These Gabungas, who assumed hereditary powers, controlled fishing operations at fish landing sites and removing them was very difficult even when there was obvious need to do so. Reid [1998] provided an historical perspective of the *gabunga* as a ganda chief who was in theory in charge of Kabaka's canoes. In practice, his authority was often limited and probably did not extend beyond control of kabaka's favorite vessels [Reid 1998:360]. Reid notes further that the early canoe-builders and oarsmen were apparently the forefathers of the Mamba clan of the Buganda Kingdom, traditionally associated with lacustrine affairs and the most prominent representatives of the profession.

Prior to the 1960's, Uganda's fishery boasted of a rich fish bio-diversity of 400-500 species including: *lates niloticus, Oreochromis niloticus, Rastreneobola argentea, mormyrus kanume, Bagrus, Clarias, Protopterus eithiopicus, Synodontis, Laboe, Schilbe, Alestes,* and *mud fish,* among others. Currently, observations from commercial catches indicate that the species composition of fish stocks have been reduced to only 3 commercial species fishery of the *lates niloticus, Oreochromis niloticus,* and *Rastreneobola argentea* [CIFA,1982; Mann,1970; Ogutu, 1985].

One of the main concerns today is about the alarmingly rapid decline of fish species and the destruction of fish bio-diversity. The rapid rise in fishing pressure has mostly led to over-fishing, local and trans-boundary conflicts, and delivery of fish of poor quality [LVFO, Dec.2005]. This is well demonstrated by the high numbers of fishermen in the waters of the three countries. By 1999, Kenya had 38,340 fishermen, Uganda had 35,000, and Tanzania had 120,000 who were operating on Lake Victoria. Thus the real threats to the well being of the ecosystem and fisheries have come from a number of scenarios including the rapid rise in population growth rate of 2.5 to 3.5 per annum of catchment's population growth in the riparian states [LVFO, Dec.2005].

The rapid demand for fish for export has exacerbated the gloomy picture of the state of Uganda fisheries. Undue pressure resulting from increasing fishing effort has been exerted on the already diminishing fish stocks creating huge demands for fish as food. Consequently, there has been an increase in fishing effort. This is evident from the over 100% rise in the number of; landing sites, fishermen, fishing crafts, and fishing gears especially, the destructive ones and their associated irrational fishing methods that have led to capturing of immature fish.

Based on the above, the government adopted a new management approach called co-management in which local people are equal partners in managing fisheries resources [MAAIF-DFR, 2003]. This is supported by the Beach Management rule No. 35, 2003, which delegates legal power to local people for fisheries planning, development and management. It's also supported by the decentralization policy where local governments are mandated to enact ordinances to permit the establishment of fisheries management institutions and devolve some decision making powers to community based institutions.

The delegation of legal power was made by fisheries stakeholders joining together to form legally empowered fishermen's groups known as Beach Management Committees [BMCs]. Each BMC comprises between 9-15 committee members drawn from all gazetted and designated landing sites prescribed to form a Beach Management Unit [BMU] [MAAIF-DFR, 2003]. The name BMUs came from Tanzania in Lake Victoria and based on this, Uganda, Tanzania and Kenya agreed to use the same name for community fisheries management organizations. Currently, this name applies to all management units on all lakes of Uganda [IFMP/LVFO, 2005]. BMUs are legal but non-government community organizations containing all fisheries stakeholders purposed to improve people's livelihoods by improving fisheries resources through co-management in partnership with governments [IFMP/LVFO, 2005].

BMCs differ greatly from previous local fisheries committees in that their leaders are elected by all members of the BMU in a composition of; 30% of the boat owners, 30% of the crew, 30% of other stake holder groups [fish processors, boat makers, managers, chatterers, local gear makers and repairers, and fishing equipment dealers], and 10% of the fish mongers and women represent at least 30% of the committee [MAAIF-DFR, 2003].

BMCs were formed to play many key roles in the management and development of the fisheries sector in Uganda and among them are; community awareness creation, coordination of fisheries activities amongst fisheries stakeholders, formulation of byelaws and enforcing them together with national legislations, and arbitration of fisheries conflicts and disputes [MAAIF-DFR, 2003]. In partnership with government, they plan and monitor fisheries activities to check fishing malpractices, protect neighborhood fish habitats, handle fisheries management challenges, and assure quality and safety of fish and fishery products [MAAIF DFR, 2003].

#### 1.2 The Statement of the Problem;

The study was intended to establish and document the extent to which BMCs have performed their designated roles and responsibilities towards the development and management of the fisheries sector in Uganda. Based on their background, BMCs were formed to play specific roles towards the management and development of the fisheries sector in Uganda but despite of this and their subsequent formation on all designated fish landing sites in Uganda and having been mandated to perform the said roles, fishing mal-practices are said to still characterize capture fishery [MAAIF-Draft Business Plan].

The source quotes presence of rampant capture of immature fish due to use of illegal fishing gears and methods implying inadequate enforcement of laws and legislations, inadequate information amongst fishers hence lack of adequate awareness, lack of effective coordination of fishing activities and development programs which would further enhance the economic wellbeing of the sector, presence of rampant fisheries conflicts that are still presided over by police and LC courts as before, and this could be the reason to explain the trend of the current events.

The central focus was to establish the extent BMCs have played their roles in the management and development of the fisheries sector in Uganda. The assessment was specifically based on the extent to which; BMCs created community awareness amongst all stakeholders, formulated byelaws and enforced them together with the national legislations, arbitrated fisheries conflicts among fishers, and the challenges they face in the process of managing and developing the fisheries sector in Uganda.

Due to the tragedy of commons and lack of effective enforcement, fisheries resource management has always been the problem constraining optimization in fisheries resource utilization. Favorable social welfare in a country rich of fisheries still lacks due to lack of effective resource management scheme and this has led to degradation via overexploitation, by both large and small- scale operators who have access to the resources of which Uganda is no exception. Recently, it has been recognized that community- based resource management regime may be an alternative for a better resource management where there is inadequacy of Awareness raising, poor activities coordination, inadequate or lack of effective byelaw formulation and enforcement, and arbitration of fisheries conflicts and where management faces several challenges, among others [Bromley and Gibbs, 1989]. Nevertheless, community-based management relies on various factors.

Community-based fisheries resources management in Uganda is not varied by resource type and or location. Recently, due to the degraded fisheries resources which are sources of rural poor subsistence income and the increasing awareness on their reliance on fisheries resources and NGOs' involvement led to increased local community concern on the resource management. Successful development of community-based management needs, at least, strong community organization capable of cooperating on management, recognition on sustainability of available resources, compliance, and effective enforcement.

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BMCs may be an answer to better management regime for an effective, and perhaps, more sustainable resource exploitation and utilization. At this stage, there should be a review on the existing BMCs in regard to management of fisheries resources in Uganda. The information from such study can provide some guidelines for development of an effective resource regime for a better resource exploitation and utilization. This study attempts to review the extent BMCs have played their roles as the means for effectively managing and developing the fisheries sector in Uganda. It is upon this background that I saw the need to investigate and document the extent to which BMCs have performed their designed and mandated roles in the management and development of the fisheries sector in Uganda as required of them.

#### 1.3 The Objectives of the Study;

The study objectives were classified as overall and specific so as to aid the study. The overall objective sought to create a general understanding of the study problem while the specific were designed to reflect the particular aspects the study sought to analyze and document.

#### 1.3.1 The Overall Objective;

The overall objective of the study was to investigate and document the extent to which BMCs have played their roles towards the development and management of the fisheries sector in Uganda.

#### 1.3.2 The Specific Objectives;

These arose from the general objective of the study and they included;

- 1.3.2.1 To assess the level of community awareness created by the BMCs in the process of managing and developing the fisheries sector in Uganda,
- **1.3.2.2** To assess the extent BMCs have formulated bylaws and enforced them in the process of managing and developing the fisheries sector in Uganda.
- 1.3.2.3 To document the extent BMCs have arbitrated fisheries conflicts among fishers as a means of managing and developing the fisheries sector in Uganda, and
- 1.3.2.4 To establish the challenges BMCs face in the process of managing and developing the fisheries sector in Uganda.

#### 1.4 The Scope of the Study;

This section presents the delimitation of the study in form of geographical, content, and time scopes. It guided me to conduct the research while well aware of the demarcations of my study.

#### 1.4.1 The Geographical Scope;

Masese beach has a low lying steep slope on the shores of Lake Victoria. It has red fertile soils and gets minimal rains two seasons annually usually between March-May, and between August-Octobers. The soils are exposed to all forms of erosion agents because of inadequate shelter as trees were cut down for charcoal and building materials, and there is some subsistence farming going on along the beach.

#### 1.4.2 The Content Scope;

The study covered the extent BMCs have played their roles towards the management and development of fisheries resources in Uganda. The specific areas of focus were; creation of community awareness, formulation of byelaws and enforcing them together with national legislations, arbitration of fisheries conflicts, and the challenges BMCs face in the course of managing and developing the fisheries sector in Uganda.

The choice of these aspects was because they are key and fundamental in bringing about effective management and development of the fisheries sector in Uganda. The measurement of the extent was done using indicators such as; fishers' change of attitude, change in household incomes i.e. improved standards of living for fishers, change of fishing gears and methods, compliance to set rules and regulations, improved hygiene and sanitation at beaches, use of recommended fishing crafts, capture of recommended fish sizes, women's decision making power, change in occupational position, amount of fisheries conflicts and disputes, efficiency i.e. optimal rate of fishery resource use, equity i.e. representation of a range of interests [stakeholders] in management practices, sustainability i.e. stewardship- maintaining productivity and ecological characteristics and resilience of the management system to cope with changes and shocks, access to the fisheries resources, uniformity of inter-beach fishery activities, among others.

#### 1.4.3 The Time Scope;

The study lasted for three months from April 10<sup>th</sup> –10<sup>th</sup> July 2006. Given the depth of findings required, the research methods used, the depth of engagements given that I used no research assistants due to financial incapacitation, and the several steps involved from data collection to final report writing, I found the three months period adequate enough to accomplished my study on schedule and indeed it was.

#### 1.5 The Significance of the Study;

The study presents the following benefits; government and other agencies are to use the findings to design and adopt more effective fisheries management and development measures and policies in Uganda, either to replace or supplement the existing ones. This is important for managing fisheries resources and therefore avoiding depletion given that the fisheries sector is said to be the highest foreign exchange earner for Uganda.

The study provides the much-needed data regarding the effectiveness of BMCs in relation to the management and development of the fisheries sector and other fisheries projects in Uganda. Without such data, there would be little way to ascertain the extent to which the fishery can be developed and managed sustainably. The findings can act as a benchmark for determining and establishing fisheries development–related projects. This is based on the fact that it documents the effectiveness of BMCs in executing their roles and therefore the likely impact on such projects given that community participation is a must.

Furthermore, the study provided the researcher avenues for interacting with fishers and hence passed on the massage that their interests and participation in fisheries management roles were very paramount to the over all fisheries. It was because the research methods used involved open and detailed discussions with the most actively fishing categories thus making it an important step in developing open links of communication with these persons to disseminate information regarding technology and application to the lifestyles/community values extant within their respective areas.

Its significance could also be seen in enriching the existing knowledge bank for academic purposes and future research based on the management theories that were discussed herein and most importantly, it is my partial fulfillment for the award of the degree of Master of Arts in Public Administration and Management of Makerere University.

#### 1.6 The Conceptual Framework;

This section brings forward conceptual arguments regarding the management and development of fisheries sector globally and Uganda in particular. It also raises important issues on the extent this management approach has led to the current progress to the fisheries sector. Fisheries management the world over has been based on several principles. One of them is influence by the western concept of the need for a centralized administrative authority. The argument for a centralized administration is based on two assumptions; that lakes are open, thus access to them and the resources therein ought to be free and open to all. The other assumption is based on Hardin's [1968:124] *tragedy of the commons*, which argues that any common resource is characterized by intense competition, which will inevitably lead to over-exploitation and the eventual dissipation of profits. The assumption is that when resources are limited to and publicly owned, it is rational for each individual to overexploit them, even though this behavior ultimately results in tragedy for the group [Acheson, 1975]. Thus, Hardin concludes, 'freedom in the commons brings ruin to all' Thus it is argued that management authority for such resources must reside with government because it is the only institution which can ensure economic efficiency, equity and effective administration.

But the central government management as a routine policy mechanism did not resolve the problem of degradation and over-exploitation of fisheries. In practice, access to fisheries under state management has been left unregulated and *de facto* the resource is held in open access [Fenny, 1994]. There is increasing evidence that this approach is often not suited to developing countries with limited financial means and expertise to manage fisheries resources in widely dispersed fishing grounds [Pomeroy, 1994]. Pomeroy further argues that in this light, devolution of major resource management and allocation decisions to the local level may be more effective than the efforts of distant, understaffed and under-funded government agencies.

The other principle is based on Bromley and Gibbs [1989] property rights regime management approach for common- property resources. They define property rights regime as the result of a secure claim to a resource or the services that resources provide. To them, such resources can be managed under four property rights regimes; state property regime where ownership and control over use rests in the hands of the state, or under private property regime ownership where an individual household or group is assigned rights of exploitation.

In this context, aquaculture is often conducted under private property rights and this type of rights is recognized and enforced by the state, or communal property rights where an identifiable community of interdependent users while regulating use amongst members holds the resource. Here, there are unlikely to be exclusive or transferable and often rights of equal access and use. Tribal groupings or sub-groups, sub-villages, kin systems or extended families are possible examples of such groups, and ownership under open access property rights regime where rights are left unassigned. There is lack of exclusivity and therefore no incentive to conserve, & therefore results in resource degradation [Bromley and Cernea, 1989].

These property rights regimes are ideal, and do not exist in isolation of each other; rather resources tend to be held in overlapping combinations of these four regimes [Pomeroy 1995]. New fisheries management methods are being conceptualized in an attempt to take on the best aspects of state control, private, and communal property rights regimes. Largely from the management experiences gained in certain fisheries and other common property resources such as forests and underground waters, it is recognized that what is needed is a more dynamic partnership using the capacities and interests of local fishers and communities, complemented by the ability of the state to provide enabling policies and legislation as well as enforcement and other assistance [Bromley and Gibbs, 1989]. This kind of partnership has been termed 'comanagement'-which is a management arrangement between pure state property and pure communal property regimes.

By definition, co-management means that government agencies and fishermen, through their co-operatives or fishermen's organizations share responsibility for management functions [Jentoft, 1989]. The concept is premised on the fact that fishing communities cannot successfully carry out all the management functions on their own. It proposes use of the fisher communities and also takes into account their interests and complements these with the government agency's efforts. The latter should also provide enabling legislation and other assistance. Hersoug and Ranes [1996] argue that the concept of co-management as used in most literature [on co-management] is paradoxically both too widely and too narrowly defined; too widely to be analytically meaningful because it usually includes all types of management in which central government has some form interaction with user groups. Co-management, they argue, must imply that the user groups have some definite influence on the decisions made.

One of the crucial aspects of the Participatory Fisheries Management program was the establishment of community-level institutions to provide the two-way channels of communication between the fishing communities and the Fisheries Department. Apart from being channels of communication, it was hoped that through such institutions, communities could progressively assume greater responsibility for

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managing their fishery. The importance of this approach is authenticated by Bland [1995:12] in his analysis of the management initiatives of the capture fisheries in Malawi where he is quoted saying; "fisheries management is about people more than it is about fish and managing a fisheries resource without considering who harvest this resource is naïve". Also, the guidelines for the beach management units in Uganda [2003] provide a framework for decentralization and delegation of fisheries functions, powers, and services and democratic participation and control of decision-making.

Under this study, the concept roles are used to mean; the different responsibilities or activities BMCs undertake in the process of developing and managing fisheries resources in Uganda. They include community awareness creation, coordination of fisheries activities, formulation of bye-laws and enforcing them together with the national legislations, arbitration of fisheries conflicts amongst fishers. Impact is used to mean; the different outcomes of the co-management approach to the fishery. They include; resource sustainability due to fair and equitable resource sharing, etc.

This arrangement of responsibilities and functions is consistent with Turner, 1993 organizational theory which states that *'the process of planning in any institution, such as government, an educational establishment or a commercial enterprise, is layered'.* Top level planning is concerned with strategy, principles and policies and setting out the framework for lower detailed decisions. More detailed planning of projects and policies takes place at one or more lower levels of responsibility although under the general supervision of senior management. The diagram below

further explains the conceptual framework in relation to the management and development of the fisheries sector in Uganda.

Figure I: The fisheries management institutional framework



All these structures have assigned roles destined for transforming the deteriorating fishery into a better one where political and administrative structures are policy makers and monitors. The Department of Fisheries Resources sources funds, give technical advice, and build capacity of stakeholders. BMCs enforce the implementation of set policies, and participate in planning and the overall management of fisheries. General assembly [BMUs] participates in formulation of bylaws, puts set policies in practice, and ensures that good fishing practices are adhered to. Industrial processors, Fisheries Research Institute and other identified stakeholders are involved in marketing, information collection and dissemination etc. Sub-County, District and the National Fisheries Management Committees are all involved in planning, marketing, and ensuring the implementation of fisheries local and national policies.

#### 1.7 The Research Questions;

In the process of systematically addressing the specific issues in the Research Problem, the following Research Questions were developed and used;

- 1.7.1 To what extent have BMCs created community awareness in the process of managing and developing the fisheries sector in Uganda?
- 1.7.2 To what extent have BMCs formulated bylaws & enforced them in the process of managing and developing the fisheries sector in Uganda?
- 1.7.3 To what extent have BMCs arbitrated fisheries conflicts among fishers as a means of managing and developing the fisheries sector in Uganda?
- 1.7.4 What challenges do BMCs face in the process of managing and developing the fisheries sector in Uganda?
#### **CHAPTER TWO: LITERATURE REVIEW:**

#### 2.1 Introduction;

The literature reviewed here in, addresses the related management and development aspects, information about fisheries resources, and other similar resources in Uganda and globally. The similarities lie in the management approaches, processes, operations, methodologies, resources, objectives and types of stakeholders. Literature review is a secondary analysis of available information already published in some form. This review provides a meaningful context of understanding the research problem or topic with in the universe of already existing research [Sarantakos, 1998].

Accordingly, the literature given herein documents the socio-economic analysis of the management and development of the fisheries sector by the BMCs in terms of; community awareness creation, formulation of byelaws and enforcing them together with the national legislation, arbitration of fisheries conflicts and disputes, and the challenges for fisheries management and development, among others.

## 2.2 The Socio-economic aspects of Fisheries Management;

This analysis focuses on the level of fisheries development in terms of production technology and provision of fisheries infrastructure such as landing and marketing facilities through subsidies and concessionary credit [FAO, 1973; Panayotou, 1982]. World-wide fisheries are often characterized by the co-existence of artisanal fisheries– Fisheries involving skilled but non-industrialized operators, typically a small-scale, decentralized operation normally subsistence fisheries although sometimes the catch may be sold. Usually, the fishing trips are short and inshore & fishing vessels are small but in developed countries, may apply to trawlers, seiners or long liners in small-scale fisheries and it exists side by side with large scale or industrial fisheries, particularly in marine fisheries [Panayotou, 1982]. This classification is based on the basis of vessel/gear types and fishing distance from the shore or a combination of the three. The inland capture fisheries of tropical Africa are, however, small-scale, involving use of low level fishing technology [CIFA, 1982].

In 1998, production from inland capture fisheries was 8 million tones [FAO, 2000]. More than 90% of this production came from developing countries, and only 3.5 % was from industrial countries. Uganda ranks eighth among the top ten countries with regard to the world total inland fisheries production [FAO, 2000]. Employment in the primary capture fisheries and aquaculture production sectors in 1998 is estimated to have been 36 million, of which inland capture fisheries accounts for 15% of the total [FAO, 2000]. With the exception of motorization of canoes and the introduction of nylon nets, the fishing technology of artisanal fishers in many parts of the world has remained largely unchanged for decades.

Studies have also estimated that artisanal fisheries use one-fifth as much capital and create a hundred times more jobs per dollar invested than large-scale fisheries [FAO, 2000]. Yet in many developing countries, small- scale fishers live close to, or below, the subsistence level or at any rate, amongst the lowest socio- economic groups with low incomes, poor living conditions and little political influence [Enger and Smith,

1983; Panayotou, 1982]. The resources on which these people depend are still largely natural fish populations. It is estimated that at least 50 million people in developing countries are directly involved in the harvesting, processing and marketing of fish and other aquatic products and world-wide fish production provides some 150 million people with employment. Inland aquatic resources continue to be under pressure from loss or degradation of habitat or over fishing. The United Nations Food and Agriculture Organization [UNFAO] estimates that almost 70% of fish stocks for which data are available are fully exploited, over-fished, or otherwise are in the urgent need of management [FAO, 2000]. Fresh water species are reported to be most threatened group of vertebrates harvested by humans.

According to Van dyer Knapp et al [2002], Lake Victoria fishery has tremendous opportunities for people whose lives are linked with this ecosystem. It is an incredibly important natural resource for the surrounding region and currently supports a plethora of human activities/ enterprises. Properly managed, it is capable of proving a relatively stable socio-economic environment for persons engaged in the various aspects of its fishery. In this regard, fishing as a life style for individuals, families and communities can and should be encouraged and supported in ways that are biologically sustainable, which reduce economic uncertainties and which can encourage participation by all members within fishing units.

Based on the above situations, the government of Uganda realized the need for the grassroots population to be involved in the management of national resources and this growing realization of increased participation by resource users in fisheries management and the fisheries department is now addressing greater localized control over access to the resource. MAAIF [2003] noted that traditionally, fisheries have not been owned in the sense that land is owned. Instead, fisheries have been held in trust by government for the benefit of every one. The source says that if fisheries is left to fishers, they will go on fishing until the contents of the net are worthless than the cost of putting the nets in the water.

The above is true especially under open access where over fishing happens because fishermen can't stop other fishermen from catching fish that they would otherwise leave in the lake. Fish export has brought great benefits to the region, in terms of employment, income and contribution to foreign exchange earnings. In a region where there are insufficient employment opportunities and trade in agricultural products is difficult, fish makes a substantial contribution to development. Other benefits include improving hygiene and fish handling standards at landing sites, bringing health benefits and improving the quality of fish destined for local and regional markets.

Empowering women and increasing their income is the best way to address poverty within households. Men at almost all levels dominate the fisheries sector and this domination, together with the lower status of women in many cultures around the lakes, means that women have not benefited from fisheries resources in Uganda and worldwide as much as they could. Women are not very much involved in fisheries and around 40% of traders and processors are women. The implementation of fisheries co-management and the formation of Beach Management Units [BMUs]

provide ideal opportunities to increase the participation of women in both fisheries management and development.

Traditionally, Women been excluded from fisheries management structures and must be encouraged to become more involved, to increase their benefits received from fisheries resources. BMUs were initially formed in many parts of the lake in the late 1990s. At that time, BMUs were not required to have women on the committees and consequently few women were involved in running BMUs. The Uganda Fisheries Administration monitoring machinery operated quite well up to the early 1970s.

During the subsequent 15 years or so, the country experienced a traumatic period of civil strife, economic disruption, and general decline. The ability of established national institutions to function effectively in support of the nation's socio-economic welfare suffered severely, mainly because of three factors. These included; lack of motivation amongst official personnel as their terms and conditions of service steadily deteriorated; lack of job and indeed any sort of security in the country; and the rampant incidence of incompetent people finding their way into responsible public offices. In the field of fisheries, this situation resulted in little initiative being exhibited by the statistics monitoring personnel.

From around the early 1970s national economic performance fell drastically and remained low because of faulty economic management decisions and other factors. This led to shortages of goods and high prices on the domestic market, and to a decline in the country's exports. Resultant deterioration in the balance of payment position, limited the country's ability to meet import requirements [MPED 1976; IMF 1980]. For the Fisheries Department, these circumstances meant that resources and basic inputs for statistics collection, processing, and evaluation could not be easily obtained.

A series of internal wars from 1978 contributed further to disastrous consequences for the country's welfare, both indirectly and directly. Indirectly, resources were diverted from the support of normal social and economic activities to underwrite war efforts. Moreover, in a direct way, there was widespread destruction of structures, looting of equipment, and disruption of activities as the fighting raged on. The fisheries information systems came to a standstill in many areas at this time. A great deal of equipment and volumes of useful records were lost or destroyed through the looting, which occurred throughout the wars and for some while thereafter.

Moreover, as the statistics monitoring activities remained low or moribund over many years, fisheries personnel were unable to stay in practice, with obvious negative effects on their professional skills. Both field data collectors and Headquarter staff data processors suffered in this way and in addition, newly recruited officers had little or no opportunity to acquire much in the way of practical experience. The overall state of affairs led gradually to a crippling loss of capability in the Fisheries Department to monitor the resource base and its exploitation thus, a complete reversal was experienced in the status of fisheries information systems from that which existed up to the early 1970s. At the same time, however, critically important developments were taking place in the industry. These developments, discussed below, include the decline in inputs in the industry in the early 1980s, and the changes in the nature of the fisheries of Uganda-particularly with regard to the upsurge of Nile perch in Lake Victoria.

Stringent import controls, introduced as the balance of payment position of the country continuously deteriorated adversely affecting fishing activities. Gear scarcity began to be felt, as foreign exchange could no longer be easily secured for its importation. The Uganda Fishnet Manufacturers Company plant in Kampala, the only net manufacturing plant in the country, operated at very low capacities with long periods of zero production because of lack of nylon yarn and spare parts, amongst other problems. Outboard engines, their spare parts, and the fuel to run them were all hard to come by. Whilst some appreciation of the complex of events during this period has been possible to reconstruct [Reynolds and Greboval 1988], it was impossible to gauge the precise effects on production at the time; nor was there any contemporary account of how fisher folk responded to the situation in terms of adopting alternative fishing practices, or withdrawing from fishing altogether.

Transformations in the mode of exploitation and the very composition of the fisheries resource were also occurring in the early 1980s. On Lake Kyoga, the widespread use of illegal fishing gear and fishing practices adopted in the period of gear shortages, in the face of the Fisheries Department's weakened ability to enforce regulations, led to changes in size composition of catches particularly for the main species, *Lates niloticus*. This situation was aggravated by the decline in the water level over the last decade by about 1.5 meters due to prolonged drought, causing

reduction in the breeding and nursery grounds, thus diminishing the productivity of the lake [Marriot *et al.* 1988; Reynolds and Greboval 1988; Twongo 1988].

On Lake Victoria, the explosion of the Nile perch after 1983 [Okaronon *et al.* 1985], widely discussed in various scientific and popular fora, was a major event in the fishery. Tremendous changes have taken place in the industry because of this development [Reynolds and Greboval 1988]. The quantities of canoes and gear on the lake increased and the gear composition changed in favor of larger meshes. Processing and marketing activities and patterns of consumer preference have all adjusted to the new realities of the fishery. Another change in the industry has been decentralization, market liberalization and globalization which have also presented an impact on the socio-economic character of fisher communities.

Under decentralization, the incentives of fishers and other stakeholders to cooperate among themselves and with government in the management of those fisheries in which they are involved are that; the level of cooperation is determined by a number of key factors relating to local politico-historical, bio-physical, economic and sociocultural environment of fishing communities and the fisheries. Also, these incentives are determined by the character of the decision-making arrangements in place for setting collective choice rules and, in particular, the operational rules for the fishery and thus the legitimacy of the arrangement to the fishers [Sen and Raakjær Nielsen 1996]. In a decentralized setting, Co-management approach is intended to replace conventional, centralized management systems which have proved inefficient and have failed to provide sustainable sector development or even to protect the productive capacity of the natural resource base. The differing bio-physical environments represent three different types of ecological systems: lake/reservoir, lagoon/estuary and open coast. A few fish species are target species and these are often subject to heavy fishing pressure or are already over fished. In most cases the fishers and their families are totally dependent on the fishery for their livelihood as with few exceptions, they have no alternative sources of income.

In Africa, co-management institutions have mainly been established at local & district level and often exist within a nested system and it is used mainly as a mechanism for conflict resolution rather than for achieving sustainability of resources. However, several examples of consultative management institutions also exist at the national level. Representation differs from fishers only [in most cases] to a broader representation which includes fishers, fisheries administrators and local authorities. The established co-management institutions are usually closely linked to existing traditional structures which mostly also represent the local authorities. In this way, the co-management system incorporates traditional management practices, and thus religious institutions, and myths and magic have also become important management tools. However, Chirwa [1997] argues that even if BMCs are democratically constituted, they are not legally sanctioned, as no law exists from which they can derive their authority in most countries.

Despite the decentralization of the fishery, gill nets and seines of various types are the commercial gears predominantly used while hook and line and cast nets are mostly used for subsistence fishing. The use of large seines with increasingly smaller mesh sizes seem to have increased in recent years, and this has contributed significantly to the depletion of stocks. Boats used in inland fisheries are unmotorized or plank boats and the economic and socio-cultural attributes are still that the fishers and their families are dependent on the fishery for their livelihood. In most cases, they have no alternative source of income or access to other sources of food production. Therefore they need an income to access their needs and this explains why all fisheries are market-oriented.

The ownership of means of production is either owned by the fishers themselves or by those not directly involved in fishing activities and the capitalistic system of ownership seems to have led to more advanced technologies being introduced. This has increased fishing effort and in many cases, caused the crisis in resource management. The market characteristics of fishers are that many traders are involved in the marketing of produce, and fishers are not entirely dependent on just one or a few traders. In Southern Africa, fish processing and trading is predominantly a male activity, and the traders seldom live within the fishing communities. In West Africa, fish processing and trading is a female occupation which is often undertaken by the fishermen's wives.

Individual action is determined by dominant economic, political, social and ideological forces, and autonomous human agency is an illusion. On this structuralist view, fisheries-dependent communities are completely at the mercy of external forces, such as globalization of the fishing industry including capitalization of ownership and world wide marketing, technological development of vessels, ecological fluctuations including El Nino and climate change, political interference i.e top down regulations from bodies like EU Commission, and social movements; principally environmental pressure groups. By contrast, according to agency theorists, individuals are independent actors who can make choices for themselves, in their own rational self-interest. On this agency view, fisheries-dependent communities can respond to their situation by their own efforts, and choose their own future development path.

As Nielsen, Vedsmand and Friis [2000: 49] put it; it is local entrepreneurship, attitudes to innovation, andlocal political decision-making combined with local culture, values and norms that make a significant impact on the performance of fisheries dependent units. We believe that truth lies somewhere in between these two extremes. In our view, although fisheries-dependent communities are to a large extent subject to external forces, they can to some extent forge their own destinies independently of those forces. Of course, economic development agents in fisheriesdependent communities are not entirely autonomous, and they must construct strategies that are consistent with overarching structures like the globalized economy and the EU's CFP. But within these constraints, agents can exercise considerable initiative and flair. Moreover, there are circumstances in which such agents may be able to influence the structures. As Anthony Giddens points out in his 'structuration theory, while it is true that structures constrain individuals, it is also true that structures are maintained by the combined set of individual actions. Hence, while agents must adapt their strategies to take account of structural constraints, in doing so, they may contribute to modifying those constraints, and thereby change the nature of the external framework within which they have to operate [McAnulla 2002: 280].

World Bank [2001] sees social capital as an important resource for the very poor. In its policy documents, the World Bank claims that social capital will contribute to local level trust and stability that will enhance economic transactions among the poor. It is stated that the existence of social capital contributes to cost reduction for firms and entrepreneurs and also enables poor people to start small enterprises and increase their income. Social capital is seen as a factor with an important role to play when attempting to reduce poverty levels in developing countries [World Bank 1998]. However, other views have it that; many people especially the poor, have been pushed out of this business due to a variety of reasons. Fish business is very difficult to be with limited capital and therefore the weak people are driven out. Some people are just weak because they can't organize the money.

Putnam et al [1993:167] claimed to see an interrelationship between organizational activity at the local level in the fishery and degree of democracy in society as whole. Social capital is to Putnam features of social organization such as trust, norms and networks that can improve efficiency in society by facilitating coordinated actions. Norms regulate the actions of members so that they comply with collective rules and the collective action that arises from this compliance will in turn strengthen overall solidarity in society [Putnam et al 1993: 169]. Social capital is a resource for the society as a whole, according to Putnam. While social capital originates in local level norms and trust, its effects must, according to him, be measured at the group or society level.

Evans [1996] disagrees with Putnam on what is to be identified as the sources of social capital. Where Putnam sees norms and trust as prerequisites for social capital, Evans emphasizes the importance of links between state and society for the existence of social capital [Evans1996:1124]. Evans and Putnam have diverging views on the foundation of social capital, but they both tend to explain social capital as a micro-level quality that is potentially beneficial to larger groups.

### 2.2.1 Community Awareness Creation;

Community awareness creation which is a process that entails information creation, collection, and dissemination to the intended party[s] is yet another socio-economic issue for fisheries management. According to Bland S.R.J [1995], participatory fisheries management programmes are essentially community awareness raising campaigns to enable fishing communities understand long-term implications of over fishing. To him, these programmes should concentrate on extension and educations through the fora of newly formed community level institutions to support fishermen adopt sustainable harvesting techniques. His view is in consonant with the views held by MAAIF [2003].

To MAAIF, BMCs are meant to disseminate information sufficient and reliable enough that is needed for successful fisheries management [MAAIF, 2003]. That this information should be made available freely to fishing communities with out compromising its source because the institution is able to do this while recognizing the traditional values and knowledge of their fishing communities. MAAIF further said that availing free information to fishers leads to effective collection, dissemination and use of such information by all concerned stakeholders thus creating community awareness about fishing activities in their areas. This is practically possible because the members of this institution live and socialize with the fishers in most times unlike the other stakeholders such as fisheries staff. BMCs are said to promote community based information collection, use and dissemination to fishing communities and other stakeholders [MAAIF, 2003]. Awareness rising is a conscientisation process required usually in making people informed and compliant towards any given program.

In relation to the socio-economic information needs, T. R Brainerd [1993] said that decisions in fisheries management and development have been always based on socio- economic factors. Even where these factors have not been made explicit, the decisions would have not been taken except in response to the demands for the enhancements of socio- economic benefits. In recent years according to him, the need for socio- economic information has increased greatly due to the effects of extended fisheries jurisdiction, a growth in awareness of resource constraints, and an increasing interest in artisanal fisheries etc. to him, such information is needed for management and development.

Brainerd further said that the need for socio-economic information is due to the fact that fisheries managers and planners are faced with a wide variety of decisions having social and economic implications including decisions for; determining priorities to be placed on the various objectives that can be perused in the fishery, allowing access to the resource, in particular determining whether and how to limit entry in the domestic fishery, determining the desirability of management controls and regulations, and their means of implementation, relative distributional and efficiency goals, maintaining and increasing incomes and employment levels of fishers, resolving and or reducing conflicts between fishers and fishers, and fishers and other fisheries stakeholders, extracting economic revenues from the fishery to meet societal goals, while minimizing enforcement costs, determining mechanisms for the formulation and negotiation of joint ventures, among others.

The development of effective and efficient national fisheries policy demands information to provide clear understanding of the position and status of the fishing on the regional, national and local levels. This information may include, for example, information on fish catch, economic value [export duties, license fees....etc] and employment opportunities for each fishery, social group or geo-political area. Information is also needed to assure the public at large that resources are managed responsibly and that management objectives are being achieved let alone the need for it for organizations and conventions such as the; UNFAO and the Convention for International Trade in Endangered Species or Ramsar [FAO 1997]. To Pomeroy and Williams [1994], management information is defined as the information and data required to support management roles and responsibilities in order to achieve the dynamic congruence between the decision making arrangements and contextual variables. Arguably, all management roles require information in one form or another since they all involve or support some form of decision making. To him, four main roles particularly are reliant upon data and information: the formulation of management plans, the implementation and review of management plans i.e. Data and information collection [monitoring], evaluating the performance of management strategy, and enforcement of management regulations, the development of national policy and the coordination of planning decisions, and inter- national reporting responsibilities.

Actual information required to manage the fishery will depend upon who has responsibility for each role and on what basis decisions are made. Three major categories of stakeholders or individuals, groups, or organizations with an interest or stake in the fishery [Hoggarth et al. 1999] will usually take responsibility for one or more roles: government departments e.g. department of fisheries, intermediary organizations; NGOs; donor projects, research institutions etc, and fishers.

Based on this realization, and on the fact that government does not have first-hand information on the fishery that the fishermen have, it needed good information about the fishery before it could act. This is why convectional approaches to fisheries management depend heavily on scientific research and information for management. Scientific information about the fishery resources is important and so

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is information about the technology and economics of fishing. With out the necessary technical and economic information needed for production decisions, the management of the resource is incomplete. Technical and economic information comes from the fishing communities and is very essential for management purposes [MAAIF, 2003].

Many stakeholders are unaware of the essential elements of fisheries management and development measures and of their central role in promoting long-term sustainability. Dissemination of such measures is adversely affected by a lack of adaptation to local needs, limited availability in local languages and, where they are available, their poor distribution. Many countries have stressed that building awareness about fisheries measures is a primary tool in facilitating fisheries management. Translation of fisheries legislations into local languages to broaden dissemination and to facilitate the establishment of national awareness-raising campaigns is highly recommended. To support awareness building and the formulation of outreach strategies, countries have proposed that workshops and meetings be continued as a means of dissemination, guidelines [some of which are available in simplified languages] continue to be promoted as a basic tool for implementation.

## 2.2.2 Formulation and Enforcement of Laws;

Fisheries management abounds with laws, rules, and regulations in most countries and many of them are quite specific and well intentioned [MAAIF, 2003]. However, the effective capacity of many fisheries agencies to regulate what goes on in widely scattered and often isolated fishing grounds, is distinctly limited. Under these conditions, the delegation of fisheries management and allocation of decisions to the local level may be more effective than the management efforts from distant, understaffed and under-funded national government fisheries agencies can provide.

The BMCs were formed to formulate byelaws and enforce them together with national legislations in partnership with the fisheries posted staff [MAAIF, 2003]. For effective management of any resource, there must be guidelines to follow in exploiting it. This is based on the fact that resources are scarce and therefore must be used sparingly or else, they can't be sustained. They were meant to give authority through making byelaws for fishers operating from the beach to fish in particular areas, for particular species of fish using recommended and legal fishing gears and methods, enforce in collaboration with the central government or local governments safety guidelines for fishing operations and Fish Quality Assurance Sanitary, conduct patrols in the beach and neighborhood fishing grounds in collaboration with fisheries staff and other government agencies, among others [MAAIF, 2003]. These were sought to translate into; improved fish stocks that would lead to increased fish production, internationally acceptable fish quality thus increased revenue, reduced use of illegal gears and methods, hygiene and sanitation at beaches, etc.

Evidence from case studies is that the legitimacy of the fishermen's organizations in the co-management arrangement improves if fishers are also actively involved in the enforcement of the set rules through peer group pressure [Jentoft, 1989]. Ostrom [1994] also points out that quasi-voluntary compliance is one of the important features of enduring common property resource regimes. To explain commitment to regulations by the actors in community governed resources, external enforcement is found to be of little relevance. External enforcers can't be there all the time nor would they be able to travel to remote villages all the time. The appropriators of the resource create their own internal enforcement to deter those who are tempted to break the rules. This serves to explain the importance of local management committee participation in enforcement of the agreed regulations. Without involving local committees in such crucial regulatory processes, the approach will merely become a consultative arrangement rather than real co- management [Ostrom].

According to North [1990], a legislative framework is a necessary condition for a successful fishing industry. In particular, fisheries management, and hence economic gains associated with it, cannot succeed without a system of regulation which is respected by fishing communities. To him, the framework of laws and regulations can influence the industry in other ways. All fisheries require management and perhaps the key issues in the success/failure of any management plan concerns the monitoring, formulation and enforcement of regulations. So as far as possible, regulations and legislations should be designed in collaboration with the sector and efforts be made to convenience the industry of their value [S.R.J Bland, 1995]. In this way, voluntary compliance with regulations will be increased. Fishermen's reaction to regulations will also be influenced by the perception of the fairness, or equity, of the system held in place by the regulations.

North further notes that, a system which is widely recognized as being fair, will more likely be one where peer pressure assists in creating a general observance of regulations. However, whatever the degree of participation by the industry in the framing of legislations and regulations, governments require a strong enforcement capability. He notes that this is so whether the regulations and legislations are designed to limit access to the resource or, more conventionally, to protect the stock. North's view is in line with the co-management approach the Department of Fisheries Resources is pursuing to manage and develop the fishery in Uganda. However, in addition to putting these regulations in place, much community awareness effort is required to make them palatable for the intended.

With Wright [1990], because of the dynamics of open access entry system, the level of effort under this system often exceeds the level under closed access. He notes that effort will then exit the fishery at a rate dependent on the ease of exit. If this is slow, there may be a considerable period where effort is greater than the open access equilibrium level. This is disequilibrium and fishermen will earn even less than their opportunity cost would suggest. The immobility of fishermen and their local community and to their occupation prevents equilibrium of labor income being established with that of other industries. Here, Wright forgot the fact that fishermen are very mobile in search of economically viable fishing grounds where they can maximize returns and they are blamed for this and yet it is justifiable.

## 2.2.3 Arbitration of Fisheries Conflicts;

The tragedy of common property in relation to the complexity of Uganda's fisheries and the often strong competition for control over these resources and the benefits mean that conflicts of various types are common. BMCs were versioned to settle fisheries conflicts among fishing communities and improve cooperation among fishers. Given that Fisheries resources are common property they face very stiff competitive exploitation for individual gains. This causes frequent conflicts amongst the resource users that must be managed and resolved by organized structure[s] to attain effective and efficient resource exploitation and utilization [Andrew Palfreman, 1994].

It was expected that these committees could preside over matters of that kind so as to create a harmonious working environment for all fishers hence protecting vulnerable fishers and increasing coordinated chances for access to fisheries resources by all [MAAIF, 2003]. This would translate into; good interactions between fishers and fishers, fishers and other resource users and stakeholders which often cause crossed fisheries relationships, enable formation of fisheries groups, save time and money that are spent in courts of law and police through arbitrations, etc.

S.R.J.Bland notes that fisheries management is about people more than it is about fish. Therefore, trying to manage a fisheries resource with out considering the people who harvest this resource is naive. Bland is conscious about group dynamics and considers managing conflicts as the way forward for fisheries resource management. Palfreman [1994] agrees with Bland's view that, conflicts arise between groups of fishermen because of competition for fish resources. Very often, in exploited fisheries, fish which is not caught by one fisherman will be caught by another. Access, therefore, can easily become a source of disputes. To Palfreman, conflicts are particularly acute in fisheries compared to other industries because fishing grounds are often open, to a greater or less degree, to competitors. Common resource properties have the problem of conflicts especially where there are no proper management measures in place which is partly why BMCs were formed.

Further, Palfreman said that economic benefit results from a reduction in conflicts. The costs incurred in the "rush for fish" are reduced as fishing skippers take a more calculated approach to their best opportunities. He says these may arise through a more measured exploitation of fish marketing opportunities or greater economy in fishing practices. Further more, the social problems which arise when people's lives are disrupted by fishing disagreements are reduced.

Rick Gregory [2001] on minimizing social conflicts and maximizing social benefits agrees with Palfreman that there are opportunities for more inclusive rather than exclusive policies that can be put in place to reduce social conflict solutions whilst increasing the benefits to local communities and it's practically correct. A harmonious management and resolution of fisheries conflicts is achieved when local fishery arbitrates them as opposed to employing distant management structures.

All in all, fisheries management must be accomplished with the participation of fishing communities; it must have their understanding and majority support in order to be successful. Whether management initiatives are implemented centrally by government or through community involvement, there will be associated costs. A Programme of limiting access to the fishery will disadvantage some while advantaging others. Limited access will fail if alternative opportunities for which a cross-sectoral approach is necessary and such an approach that combines community participation, limited access and development of alternative economic opportunities offers the only long-term solution to addressing the downward development spiral of the fisheries resources.

## 2.2.4 Challenges for Fisheries Management;

Zwieten, P.A.M. at el [2003] said, co-management is an emerging trend and is usually applied in the management of common property resources, such as fisheries especially capture fisheries, floodplains and forests. Therefore, there is an increasing realization among fisheries managers that fisheries management must include participatory approaches, to address the many challenges and or complex issues including many interests, interest groups, disciplines and issues. Zwieten at el further said, it is also becoming generally accepted that fisheries management cannot be based on simple predictability of nature and fisheries behavior, but must take an adaptive approach. Fisheries management must therefore develop into participatory learning systems accepting and able to handle the uncertainties and risks associated with management in uncertain situations and this presents with it several challenges on the side of the resource managers. Countries are experiencing problems in managing fisheries, developing fisheries management plans and in implementing the international plans of action. They have also pointed out that some fisheries are not subject to management and that such open-access conditions are leading to over fishing. Furthermore, even when fisheries are subject to management, many of the stocks under such regimes continue to be either fully exploited or overexploited and the recovery plans for these stocks, which should be a high priority, are being implemented only slowly. Countries have reported difficulties in applying more advanced forms of fisheries management practices and have indicated the need for assistance in areas such as: drafting national codes and national plans of action; implementing vessel buy-back and industry restructuring schemes to reduce fishing capacity; improving fisheries research capabilities, including possible twinning arrangements between research institutes in developing and developed countries; identifying and assessing new and under-exploited fisheries resources; and implementing the ecosystem approach to fisheries.

They said, fisheries management challenges usually emanate from areas like; Fisheries legislation or Act, fisheries management plans, management measures, control of fishing efforts, season closures, and species size capture, gear types used verses the recommended, fishing areas/zones, licensing conditions and enforcing licensing conditionalities, Monitoring Control and Surveillance activities, financing, training, politics, Vision, leadership, planning and accountability, among others. The challenges include; extensive geographical coverage and limited surveillance capabilities for fisheries managers, limited financial resources, immense task in monitoring, control and surveillance, lack of effective coordination between relevant government agencies, need for regional cooperation/collaboration, lack of effective implementation of measures, the mainly used top-down approach towards fisheries management by government agencies, political interferences, among others.

According to Zwieten et al, fisheries management must be able to provide legitimate governance for an effective and sustainable productive sector with a long investment horizon on the basis of a resource base that is fluctuating and with diffuse boundaries. In this process, management must reconcile or identify accepted compromises for the interests of a variety of stakeholders, in most cases with contradictory objectives. Fisheries management must furthermore make decisions in relation to social and natural systems that are highly dynamic and with limited predictability. Most fisheries are suffering from overcapacity, which means that management is dealing with a system with high pressures both on the management institutions themselves and on the resource base. This produces an increased requirement for predictability in management decisions while the technical possibilities for predictions at the same time are reduced.

To address these challenges effectively, fisheries management must be adaptive, that is, based on institutional structures, which can evaluate outcomes, develop new understandings of the situation and take corrective action in terms of both management measures and the future institutional framework for management

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decisions. In some systems, adaptability is the basic design principle and therefore there is a strong need for those involved in management decision processes to reflect on outcomes and the adequacy of a continuation of past practices. If reflectivity is not a part of the process either as an integral part of the institution or on the personal level there is a high risk that fisheries management becomes trapped in specific pathways which leads to unsustainable fisheries such as was the case in the collapse of Newfoundland cod and the long-term decline of North Sea cod.

Institutional adaptively involves both learning from experience and modification of future action. The first requirement is that the management institution is able to learn from experiences. This would be a first requirement for change even in those situations. There is thus a need to develop fisheries management institutions into learning institutions. The basis for learning institutions is learning individuals. The training of the participants in the management institution should therefore not only be considered as an external activity preparing the individual for participation but should rather be seen as an integral part of the institutional learning process. This has extensive implications for both the facilitation of training and for the management institution itself.

## 2.2.4.1 Challenges for training;

Training of managers for adaptive systems is training of abilities to learn and decide in a collective of stakeholders. Such training must be suitable for the specific users, it must be adequate for the scale of management and it must cover relevant disciplines. The three main dimensions in training are thus users - disciplines – scales. The training needs are very different for different participants in the management process. The initial academic training for employees of public services and organizations is developed though university curricula. For this group there is a need to provide both initial post-university training and career-long training.

The initial post-university training would relate to specific management system in which the person is to operate, to those personal skills, required as a participant or facilitator in the decision making process and which are not normally included in university training. Career-long training would include updating the discipline basis; develop personal skills and communicating global experiences from fisheries management. Most of these aspects of career-long training would most effectively be based on a learning process where discipline issues, global experiences and personal skills are reflected in relation to specific situation in which the person operates.

The training of user representatives such as; in councils etc is a different matter altogether. They would have a very diverse training background in terms of both disciplines and level. They would also not be able to set aside much time for training separate from the management decision process. Training must demonstrate its utility up front. Again, the relevance of training will be highest when training relates to the specific system and even to specific problems to be solved.

Fisheries management is a multidisciplinary undertaking where extensive lists of disciplines can and have been produced. The challenge to the fisheries manager is not just to have a general understanding, which enables the person to grasp the

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substance of biological/economic/social etc inputs but even more to be able to synthesize and utilize multiple sources of information. The first can be learned by systematic training in a course setting or similar, the latter is more a personal skill, which is, developed though practice in an environment where such skills are called for. Training for such skills is best implemented as a supportive activity in direct association with the process where these skills are required.

There is a need for fisheries management training also elsewhere to balance training for immediate efficiency versus training for innovative capacity. Training for immediate efficiency would focus on specialized skills, specific to the task or even specific to the local system while training for innovative capacity would emphasize those general skills which enable reflectivity and ability to learn from own and global experience. Given the requirements for adaptability, the latter skills should have high priority. Nested management systems would require different sets of skills on different levels, ranging from understanding aspects of techniques for assessing the situation and implementation issues at the lower levels to understanding general policy issues and institutional modalities at higher levels.

## 2.2.4.2 Challenge of Political support for implementation;

Flagging political support for the fisheries management measures undermines the momentum needed to carry forward initiatives that support its full implementation. Governments need to maintain support for implementation even when the necessary measures are politically unpopular. Governments should continue to focus and act on inherent and entrenched problems that lead to unsustainable fisheries practices, some of which have adverse consequences for food security, livelihoods and economic development. These problems extend beyond fisheries; include poverty, demographic pressure, illiteracy and low levels of education, as well as suspicion of, and a general resistance to, change. In moulding strategies to promote change and to implement fisheries measures, governments should consider and address ethical concerns, including the right to food and environmental stewardship.

## 2.2.4.3 Lack of clear Vision, leadership, planning and accountability;

Some countries lack a clear vision for the fisheries sector, especially those whose governments fail to provide leadership for stakeholders and a framework for forward planning. To implement fisheries management measures effectively, countries have stressed the need for an "enabling environment" characterized by vision, leadership and planning. As part of this process, governments should specify clearly the shortand long-term goals they wish to achieve in the implementation process. It has also been noted that greater accountability on the part of stakeholders enhances the implementation and therefore accountability at all levels should be encouraged.

# 2.2.4.4 Inadequate Policy, legal frameworks and strategies;

Inadequate policy, legal frameworks and fisheries development strategies restrict the implementation of fisheries management measures by failing to provide the necessary safeguards to prevent unsustainable fisheries practices. There is great need for countries to undertake policy and legislative reviews and to elaborate transparent strategies to ensure that management principles and essential elements are adequately reflected in such initiatives to address such shortcomings.

### 2.2.4.5 Human resource development and institutional strengthening;

Lack of progress in implementing fisheries management measures is linked directly to human resource and institutional capacity constraints. Countries have underscored the need to ensure that capacity-building efforts are maintained and, owing to high attrition rates, that human resource development is sustained. Related to the issue of weak institutional capacity is the need to foster more effective interagency collaboration because a lack of such cooperation has a serious impact on the implementation of such measures. Similarly, there is need to address inadequate coordination and communication among national fisheries administrations and other national agencies.

**2.2.4.6** Availability of, and access to timely, complete and reliable information; The limited availability of relevant scientific, social and economic information and its poor accessibility to stakeholders inhibits the implementation of fisheries measures. This situation contributes to poor levels of scientific and related research– a basic consideration for implementation. To address these shortcomings, countries should promote improvements in the collection and dissemination of information with due regard to information of highest priority. There is a lack of social and economic information to support the implementation of such measures and therefore there is need to encourage greater emphasis on its collection and use. In some instances, management partners should urge that fishing communities be involved in information collection especially in small-scale fisheries.

## 2.2.4.7 Unavailability of resources;

The challenge here is, a lack of resources, including funds, equipment and access to research facilities, constrains fisheries management processes and practices, especially in developing countries, with respect to the ecosystem and precautionary approaches to fisheries [FAO 2006]. Countries have indicated the need for additional technical support from FAO and financial support from the international donor community. They have also noted that additional resources would enable them to strengthen efforts to elaborate national plans of action. Noting the strong social and economic pressures on fisheries, including vulnerability to poverty and a lack of alternative employment opportunities for fishing communities, countries have stressed that overcapacity in the fisheries sector should be addressed through employment creation in other economic sectors.

### 2.2.4.8 Illegal unreported and unregulated fishing [IUU];

IUU fishing, now recognized as an environmental crime, is a major impediment to achieving long-term sustainability. It undermines management efforts and rewards fishers who fail to observe national and regional management arrangements.

## 2.2.4.9 The challenges of allocating fishing rights;

Allocating fishing rights is contentious because it means making some explicit social, political, legal and economic decisions. These decisions can have significant impacts on people–ranging from a few individuals and their communities to entire states and regions of the world. Indeed, in essentially open access situations where there is extreme overcapacity, the process of moving from an open access to a rights-based management system that involves the allocation of fishing rights is likely to require major structural reforms that are well beyond the resources of local fisheries managers and communities.

The allocation of rights need not to create permanent losers, as fishers who are not granted rights can be compensated with public or private funds as part of temporary support for structural reform in fisheries. This support is temporary because once stock recovery has occurred, fishing effort has shrunk and overcapacity has been reduced, the sector itself can start to generate public revenues and such revenues are essential in developing countries, in particular for building various forms of infrastructure (e.g. for transportation, health and education). For some of those countries, the main challenge associated with allocating fishing rights lies in finding the resources needed to finance the introduction of fishing rights, where they do not exist, or to resuscitate traditional systems of property rights. Legally, allocating fishing rights implies that the state must have the possibility of allocating such rights in the first place. Currently, some legal systems do not support the allocation of fishing rights.

In addition, once rights have been established, there is need for legal systems to support and uphold the implementation of such rights. In particular, there is need for adequate legal foundations to uphold security elements, durability and enforceability of the exclusiveness of these rights and such conditions may not always exist. To add to the social, political and legal challenges of allocating fishing rights, the design, of implementation and operation of rights-based programmes

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need to reflect the particular circumstances and goals of the people who are participating in them.

Although the fundamental principles are the same, there is no single perfect design that can be applied indiscriminately across different types of fisheries. Many of the highly publicized rights-based programmes developed over the past 20 years have started out by allocating fishing rights to the individual people actively fishing in a fishery, but this approach is only one of many. Fishing rights have also been allocated to communities and other groups whose members may have fished in a particular fishery /area. Once allocated, the enforcement of fishing rights and ensuring their exclusivity from infringements by people outside rights systems can have two types of impact. In some fisheries, especially those where current enforcement activities are minimal, enforcement costs can rise but these costs may be more than offset by the increased profits accruing to the participants in the fishery.

In other fisheries, where enforcement costs have already skyrocketed to ensure compliance with complex controls and regulations, enforcement costs can fall as participants in the fishery begin to realize the value of their asset and engage in selfenforcing behavior, reducing the need for intensive and costly enforcement. In both situations, technological advances in communications, monitoring, control and surveillance are making it easier and cheaper to undertake enforcement activities in areas previously thought unmentionable because they are remote or the fishers are spread over enormous areas. Finally, one of the major challenges associated with allocating fishing rights is that the very success of rights-based programmes creates a threat to their existence – simply because they create the conditions for profitable fisheries that are not confronted by the serious issue of over-fishing caused by overcapacity. Where such rights have been allocated, the original decisions concerning allocations are frequently challenged by those outside the system who want to participate in the now profitable and sustainable fisheries.

Overcoming the challenges of allocating fishing rights requires that fishing rights are durable, divisible, transferable, exclusive and secure and many of the centuries-old community-based management systems around the world were premised on these characteristics—at least until the imposition of modern top-down concepts of management altered them. Furthermore, with the contemporary evolution of rightsbased fishery management programmes, the process of allocating fishing rights and the phrase "rights-based approach" no longer equate with one very particular type of rights-based management that has received a great deal of attention — the use of individual transferable quotas [ITQs]. Recent developments in the allocation of fishing rights mean that the world has far more options than simple ITQs as the sole means of rights-based management.

Efforts are increasing to codify informal rules and to amend legal frameworks to incorporate customary fishing rights into contemporary legal parlance and/or establish conditions necessary to support them. The current variety of schemes for formally allocating fishing rights has vastly expanded the range of fisheries and fishing situations to which rights-based schemes can be applied. Indeed, fishing rights have been allocated under longstanding programmes such as the community development quota [CDQ] systems that have been operating in fishing communities in the Bering Sea; the various types of territorial use-right systems such as those found in Fiji, Japan, the Philippines and Samoa; the Management and Exploitation Areas for Benthic Resources in Chile; and the Beach Management Units found in Kenya, Uganda and the United Republic of Tanzania.

Very importantly, the process by which these systems are designed and implemented has changed considerably over the past ten years. Participatory processes with extensive stakeholder and community-based dialogues are now recognized as critical when designing and allocating fishing rights in order to meet the needs and engage the support of the people who are affected by them. Managing people's expectations and deliberately considering how people respond to positive and negative incentives are becoming standard procedures, because doing so helps to diffuse tensions regarding equity and social justice issues and has been shown to help legitimize the final product.

In addition to transparent processes and guidelines to reduce the potential for community conflict and uncertainty, solid policies – a combination of planning and market-based mechanisms supported by governance and legislative frameworks – are now considered absolutely necessary as part of the allocation of fishing rights. Where the rights-based management programmes are already supported by a legal framework, fishers and managers are increasingly aware of the benefits of such programmes and are working to achieve their implementation.

Several decades ago, the efforts of public administration were concentrated on developing fisheries and aquaculture and ensuring growth in production and consumption. Then, in the 1980s, as many resources became fully exploited or overexploited, the attention of policy-makers began to focus instead on fisheries management, in addition to development of aquaculture. Subsequent recognition of the many failures in management have now led FAO member countries and other relevant stakeholders to broaden the approach and governance; that is, the sum of legal, social, economic and political arrangements used to manage fisheries and aquaculture in a sustainable manner is currently seen as a necessary context for management and is becoming the main concern.

In conclusion, the challenges faced by managers in terms of Managing fisheries are almost similar to problems that confront them in their efforts to integrate into the global economy. The problems are both inherent and inherited. However, priorities have to be placed on the following: encourage community involvement in fisheries management, encourage collaboration between national enforcement agencies, and encourage regional collaboration. These could assist towards address financial constraints, administrative and MCS limitations faced by Small Vulnerable Economies.
#### **CHAPTER THREE: METHODOLOGY:**

#### 3.1 Introduction;

This chapter explains how the study was carried out. It contains the research design, a description of the study area, the study population, the sample size, the sampling procedures and methods of data collection, approaches to data management and analysis, and the limitations of the study.

#### 3.2 The Research Design;

The study used a case study design. A case study entails a detailed exploration and investigation of a specific case, which could be a community or an organization [Stake, 1995]. A case study research design is based on many assumptions and one of them is that; human behavior is largely a function of the resources available to the individuals [Modrcin et al 1985, p.62]. Under this study, the fishers' experiences in their natural setting, and the meaning they attach to these experiences, and the multiple contexts within which these experiences occur were studied. Accordingly, Masese beach was used and it generated all the data for the study. The analysis of the findings started immediately with the start of the data collection and continued throughout to the end and after the study.

The motivation for doing qualitative research, as opposed to quantitative research, comes from the observation that, if there is one thing which distinguishes humans from the natural world, it is our ability to talk. Qualitative research methods are designed to help researchers understand people and the social and cultural contexts within which they live. Kaplan and Maxwell [1994] argue that the goal of understanding a phenomenon from the point of view of the participants and its particular social and institutional context is largely lost when textual data are quantified. Just as there are various philosophical perspectives which can inform qualitative research, so there are various qualitative research methods. A research method is a strategy of inquiry which moves from the underlying philosophical assumptions to research design and data collection. The choice of research methods influences the way in which the researcher collects data. Specific research methods also imply different skills, assumptions and research practices.

Qualitative research can be positivist, interpretive, or critical. It follows from this that the choice of a specific qualitative research method [such as the case study method] is independent of the underlying philosophical position adopted. For example, case study research can be positivist [Yin, 2002], interpretive [Walsham, 1993], or critical. Positivists generally assume that reality is objectively given and can be described by measurable properties which are independent of the observer (researcher) and his or her instruments. Positivist studies generally attempt to test theory, in an attempt to increase the predictive understanding of phenomena.

Under the interpretive paradigm, researchers start out with the assumption that access to reality [given or socially constructed] is only through social constructions such as language, consciousness and shared meanings. The philosophical base of interpretive research is hermeneutics and phenomenology [Boland, 1985]. Interpretive studies generally attempt to understand phenomena through the

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meanings that people assign to them. Interpretive research does not predefine dependent and independent variables, but focuses on the full complexity of human sense making as the situation emerges [Kaplan and Maxwell, 1994].

Critical researchers assume that social reality is historically constituted and that it is produced and reproduced by people. Although people can consciously act to change their social and economic circumstances, critical researchers recognize that their ability to do so is constrained by various forms of social, cultural and political domination. The main task of critical research is seen as being one of social critique, whereby the restrictive and alienating conditions of the status quo are brought to light. Critical research focuses on the oppositions, conflicts and contradictions in contemporary society, and seeks to be emancipatory i.e. it should help to eliminate the causes of alienation and domination.

The research design provided the framework that guided me in collecting and analyzing data and its choice reflected decisions about the priority given to a range of dimensions of my research process. Accordingly, a single community [Masese Beach Management Unit] was studied to generate the required in-depth data. This was based on the fact that the nature of data collection for a case study design leads to detailed findings thus making it the most suitable research design for my study since the study was intended to bring out similar data.

Equally, the research methods that this research design employed were also ideal for generating an intensive and detailed examination of the study community. In

addition, the research design and the research methods selected for the study were mutually non-exclusive and yet complemented each other in the process of collecting in-depth qualitative data.

### 3.3 The Study Area;

The study was carried out at Masese beach found in Jinja district. The Beach has been in existence for several years and is located on the shores of Lake Victoria [Africa's principal lacustrine fishery] in the Napoleon gulf near the source of the Nile River. It is bordered by Wailaka beach in the East and Ripon in the West. It lies between 0° and 30° North of Equator and 33° and 34° East of Greenwich and it is approximately 3kms East of Jinja main town and with in Jinja municipality.

The area has a multi-ethnic and therefore a multi-lingual population totaling to about 8035 people [Population census 2002]. The ethnic groups include the majority Basoga, Iteso, Adholas, Alur, and Baganda among other ethnicities and majority of these participate in the fishing activities [Masese BMU register, 2003].

Economically, people of this area depend mostly on fishing activities but due to some factors like theft of nets, poor fish catches, drought, diseases, among others hamper their earnings and yet the rate of population growth is very high in this area [population census 2002]. The people also engage in a wide range of livelihood activities that include fish processing, agriculture [crop and livestock production], petty trade in a wide range of merchandise and fish trade. Other major activities include; selling and repairing of fishing equipments, boat building, offloading and

loading of boat cargo. The beach also serves as an exit point for fish from islands as well as an entry for businessmen and women who transact businesses within the beach, and between Jinja town and the islands.

Masese being near Jinja main town both men and women have a variety of other social and economic activities they can ably participate in. the beach enjoys the services of an effective telecommunication network provided by various private companies including MTN, Celtel and Uganda Telecom. The road network is idle, and the area is well connected to hydroelectricity power supply which is instrumental in supporting the fish factory, boat yard and other businesses. The landing site has two designated areas that were noted by the study. One area has well constructed shelters and fish slabs where offloading and loading of fish on refrigerated trucks to the fish factory is done. At this place fish inspection and weighing by the fisheries and factory staff is done. The second designated area has a shelter where fish for local markets and other factories is offloaded from local boats and those from islands for inspection, weighing and eventual selling are done.

In terms of administration and political structures, the area has had and still has several legal and defined management structures including the BMC, the LC system and other tribal and cultural structures. These structures are ideal for political, administrative, and utmost, fisheries management purposes.

The choice of this area was because it is easily accessible, am familiar with the area and all the languages used by the people, thus no need for an interpreter and this reduced the costs of my study. In addition, the area has all the beach management structures and fishing was the most important socio-economic activity of the people and therefore had potential respondents. Below is the map of Uganda showing the study area.



Figure ii: The Location of Masese Fish Landing Site

Source: Internet

## 3.4 The Study Population;

The study population of this area is 5518. This population includes and is limited to those persons whose main activity is fishing and participating in fisheries related activities. For purposes of this research, the study population was categorized into three namely; the Beach Management Unit [BMU] category, the Beach Management Committee [BMC], and the Fisheries Extension Workers [FEW] category.

## 3.4.1 The Beach Management Unit [BMU] category;

The BMU category comprise of fishers at a fish landing site and has sub-categories such as; crews, boat owners, fish processors, fish mongers, boat makers and repairers, gear makers and sellers, managers and chatterers. At Masese fish landing site, the category had 5500 members in the composition of; 1220 boat owners, 3935 crew, 54 fish processors, 112 fishmongers, 10 boat makers and repairers, 15 gear makers and sellers, 20 managers, and 134 chatterers [Masese BMU register, 2003]. The BMU category was ideal for this study because it comprised the ultimate resource users who form the basis for implementing all management measures and guidelines which are administered to its fishers, as they are fully involved in fishing activities. Therefore were believed to have and indeed had a wealth of information for the study.

## 3.4.2 The Beach Management Committee [BMC] category;

The BMC is elected by all fishers of a given fish-landing site or a fishing zone to institute the management of this said area. The committee's composition differs from area to area but it is between 9 and 15 members. For the case of Masese landing site, the BMC had 15 members [Source: Masese BMU register, 2003]. The BMC category were also used because it is the category that implements and or enforces the management measures and guidelines and its effort highly determines the degree at which fisheries resources are managed and developed. Therefore, being the key players, they had to be considered for the study.

# 3.4.3 The Fisheries Extension Workers [FEWs] category;

The FEWs are government workers appointed and assigned responsibility of offering extension services and they therefore oversee and redirect the management and development the fisheries sector in their areas of jurisdiction. Masese fish landing site had only three fisheries staff and all of the 3 were used for the study. Because this category oversees the management of the fisheries sector in the area, particularly, they carry out supervisory, management, regulatory, advisory, monitoring and training roles to the BMC and BMU; they had a clear picture about the performance of the BMC and shared it with me during the study and this is the very reason why they were chosen. See the summary of study population below.

Categories	Sub-categories	Population		
BMC category	Committee members	15		
Sub-total		15		
FE W category	Fisheries Extension Workers	3		
Sub-total		3		
	Fishing crews [fishermen]	3935		
	Boat owners	1220		
	Boat makers and repairers	10		
	Fish processors	54		

Table 1: Summary of the study population:

BMU category	Fish mongers	112
	Gear makers and repairers	15
	Managers	20
	Chatterers	134
Sub-total	5500	
<b>GRAND TOTAL</b>	5518	

## 3.5 The Study Sample;

It is not possible, nor it is necessary, to collect information from the total population. Instead, a smaller sub-group of the target population or a sample is selected for the purpose of study [Kakooza, 2002]. Therefore, for purposes of collecting and getting in-depth information for the study, a sample size of 150 respondents drawn from a sample frame of 5518 potential respondents was used. The study sample comprised; 137 from the Beach Management Unit [BMU] category drawn in the composition of; 10 boat owners, 60 crew, 16 fish processors, 14 fish mongers, 6 boat makers and repairers, 8 gear makers and sellers, 8 managers, and 15 chatterers. The choice of this composition was done purposively to ensure that all sub groups are represented bearing in mind their characteristics and job tasks. From the Beach Management Committee [BMC] and Fisheries Extensions Workers [FEW] categories, 10 and 3 members were used for the study respectively.

The justifications for choosing the sample size of 150 were; the sample was adequate enough to provide the required data as it was drawn randomly and purposively from the key categories and therefore give a cross examination of issues given the research methods used during the investigation. The sample size was also large enough to give greater precision because the amount of sampling error was less. This is because a sample size of below 150 would give a less precision and one above 150 would be an uneconomic proposition. It was of a manageable size and therefore cost effective.

Categories	Sub-categories	Sample
BMC category	Committee members	10
FE W category	Fisheries staff	3
	Fishing crews [fishermen]	60
	Boat owners	28
	Boat makers and repairers	4
	Fish processors	8
BMU category	Fish mongers	10
	Gear makers and repairers	6
	Managers	6
	Chatterers	15
Total		150

Table 2: Summary of the sample used for the study:

# 3.6 The Sampling Procedures;

Different Sampling Procedures are used for selecting a sample for purposes of data collection. Sampling is the strategy of selecting a smaller section of the population that will accurately represent the patterns of the target population at large. It is the process by which some members of the population are selected to represent the entire population or categories of the study population. Ideally, the whole population could be used for a research but due to limitations such as lack of enough resources and urgency of results raise a necessity to get representative samples following defined procedures [Kakooza, 2002:11]. It is also believed that dealing with smaller numbers increases the degree of accuracy and enables deeper analysis compared to large ones.

Broadly, I used two major types of sampling procedures; Probability Sampling and Non-probability [Purposive] Sampling. Under Probability Sampling, two methods namely; Simple Random Sampling where every unit of the population had equal and positive chance of being selected and Systematic list sampling were used in the study to ensure that the sample truly represented the overall population.

Purposive Sampling procedures which were desirable in the audience research to purposively choose the region and the respondents from specific categories for specific purposes were used too. It was particularly relevant during the exploration of the universe and understanding the audience where common sense and good judgment in choosing the right habitations, and meeting the right number of right people for the purpose of your study were employed.

# 3.6.1 Simple Random Sampling;

This is a procedure where all members of BMC category were given equal chances of being selected. Given that there were 15 members from this category and only 10 were to be selected for the study purpose, I folded 15 similar pieces of paper and picking with replacement to maintain the sampling frame was done to get the 10 required members. The process involved a lottery where all the numbers were written on small, uniform pieces of papers, the papers folded, put them in a container and the required lot was taken out in a random manner from the container as is done in the kitty parties. Its choice was because; it avoided getting biased during selection and it was relatively simple to implement and the selected sample units enabled me to confidently generalize results from the small sample to the larger population.

# 3.6.2 Systematic List Sampling Procedure;

Systematic List Sampling procedure was used to collect data from the BMU category since all the subjects of the study populations were on a list. I used this procedure simultaneously with the simple random sampling procedure to get the 137 respondents from the BMU category that had 5500 members from; Fishing crews, Boat owners, Boat makers and repairers, Fish processors, Fish mongers, Gear makers and repairers, Managers, and Chatterers. These procedures were complimentarily used at sub-group level to purposively get the sub-group's representatives of the BMU category following the above mentioned respective compositions.

These procedures were ideal and convenient because all BMU members from this study area were registered [listed] following the provisions and guidelines for the formation of BMUs in Uganda [MAAIF, 2003]. In addition, the procedures gave all the members equal chances of being selected, avoided bias, and greatly reduced the sampling error let alone being easier and more likely to represent the different subgroups that were under the study. The procedures for getting 137 respondents from the 5500 members were carried out at sub-group levels and involved: dividing the sub-group's total population by the decided number of representatives of that sub-group to get the interval that was used in selecting the members of that sub-group. For example, under the boat owners' sub-group, I divided 1220 by 28 [the purposively determined representatives for this sub-group] to get 44 as the interval for this sub-group. Using this interval, I randomly selected a number between 1 and 44 using the Simple Random Sampling procedure to get my first respondent of this sub-group.

The selected number was 4, and then name marked number 4 was the first respondent of this sub-group. To get the second respondent, I added 4 to 44 and got 48. To get the remaining respondents for this very sub-group, I kept on adding 4 to the preceding number until a total sample of 28 respondents was got to represent this sub-group. These processes were applied to all the other sub-groups to come up with a sample of 137. Please see the table for the summary of sampling procedures.

# 3.6.3 Purposive Sampling;

Extreme Case purposive sampling procedure was used gets the 3 fisheries extension workers, a sample which was just convenient with out going through random sampling. Under purposive sampling, participants were selected on the basis of having a significant relation to the research topic–but known to each other beforehand as they were recruited from a particular group or category. The procedure focused on cases that were rich in information because they were unusual or special in some way and therefore was seen very relevant to the study compared to the other types.

Several reasons formed the basis for the choice of this procedure and they included; there were small numbers of individuals/groups sufficient enough for understanding human perceptions, problems, needs, behaviors and contexts, which were the main justification for a qualitative audience research. Also the procedure gave me the chance to get views from all the 3 members of this category given that the category was one of the main study populations deemed to offer very useful data since it was one of those implementing the fisheries management and development measures.

Further more, the fact that the power of purposive sampling lies in selecting information rich-cases for in-depth analysis related to the central issues being studied contributed to its choice. Lastly, the numbers of this category were of a manageable size and the procedure its self was equally convenient for me to use. See the table below;

Table 3: Summary of the used Sampling Procedures and theircorresponding population categories

Sampling procedures	Population category
Purposive Sampling	Field Extension Workers [FEW]
Simple Random Sampling	Beach Management Committee [BMC]
Systematic List Sampling	Beach Management Unit [BMU]

#### 3.7 Data Collection;

Under this, the different research methods and instruments that were used during the process of collecting data in the field are spelt out. Data collection involved use of three research methods and their corresponding suitable instruments that were subjected to specific categories of the study population that were categorized as; Beach Management Committee [BMC], Beach Management Unit [BMU] and Fisheries Extension Workers [FEW].

Data analysis was continuous right from the start of data collection up to the end of the exercise given that the nature of research and its corresponding research methods require the researcher to do so. During preparations for data analysis, each respondent was assigned a score and their respective responses were assigned codes especially from the interview and questionnaire instruments. This made data systematically organized and easy to summarize. The coding process began with identifying variables in the study and assigning those names.

### 3.7.1 Data Collection Methods;

Given that there were many actors with a stake in fisheries management, the study employed various qualitative data collection methods. These Qualitative research methods enabled me to study all phenomena including social and cultural. Qualitative data sources used included observation and participant observation, interviews, questionnaires, documents and texts, and my impressions and reactions. It was envisaged that data gathered with different data collection strategies would serve to complement and strengthen one another. Because the focus of this study was the management and development of fisheries sector in Uganda, those that were immediate in the fisheries management and development especially participating in the day-to-day fisheries activities were prioritized. Consequently, much of the data gathered was from the fishers and this formed the basis of the qualitative data which is at the center of the study.

The data collection and analysis methods I used allowed me gain insight from a variety of perspectives, providing the flexibility to pursue topics arising through previous discussions. Most importantly, these methods captured the interactive quality of the respondents and the way in which they were keen to explore management and development issues, knowledges and discourses surrounding the management and development of the fisheries sector in their area. For example, using a focus group meant that I was able to examine the way in which the fisheries sector is managed.

The study used three research methods to collect information and this was intended to ensure triangulation of the information in addition to getting in-depth data from the respondents for the study. The methods used for the study included;

# 3.7.1.1 Interviews;

I used face-to-face semi-structured interview method to collect data from the BMC and the FEW categories. The interview method of research, typically, involves a faceto-face meeting in which a researcher (interviewer) asks an individual a series of questions. According to Mbaaga [1990], interviews are deliberate conversations between the interviewer and an informant conducted for the purpose of collecting information. Based on Mbaga's definition visa avis the fact that the required data for the study was in-depth findings, I saw this method useful as it involves face-to-face interviewing and consequently it allows more probing during data collection.

During the interviews, I dealt with one respondent at a time while ensuring a harmonious interview relationship in order to make the respondents feel at home. Using the interview guide as a guideline for sequence and staying on track, the interview process involved asking one question at a time, and repeated it where necessary to ensure that the respondent understood it while allowing the respondent enough time to answer without any due influence. Participants in these interviews were more inclined to express management ranging stories from their experience, requiring a much longer duration in the interviews than expected. The method was ideal for these categories because their numbers were manageable and it enabled me to get in-depth qualitative data as it allowed much probing during data collection.

# 3.7.1.2 Focus Group Discussions;

Before the discussions, I initially conducted participant observation which gave me an initial understanding of some of the issues and topics that were pertinent to them in relation to my research. I followed this up with a focus group, as I felt the themes were particularly suited to interaction in a group context. As I was known to and had built sufficient trust amongst the members of each group and with the chairman's [BMC] help, we set up a mutually convenient date and I introduced my research to them and asked them if they would be willing to be involved in a focus-group discussion which they unanimously accepted.

The participants for the FGD were 137 from the BMU category which comprised subcategories of; the crews, the Boat owners, Fish processors, Boat makers and repairers, Fish mongers, Gear makers and repairers, Managers and Chatterers. The participants tended to be fairly motivated to attend, viewing the discussions as beneficial rather than an imposition. During these discussions I created a safe space for the groups to vent their feelings about the management and development of the fisheries sector in their area visa avis their positions. Before the discussion, I outlined the broad research aims, reiterated my position on confidentiality & anonymity, and checked that it was okay to record down the information from the discussions. I also encouraged them to express their views as freely as possible by stressing that there is no right or wrong answers.

The methodology involved preparing for the sessions through identifying the major objective of the meeting and aspects that would be discussed between 60-90 minutes. Each group was invited to the meeting with its proposed aspects for discussion one after another until all groups were over. I started by telling the group about how the discussions would be arranged, what was to be discussed, and for how long. During discussions, I introduced discussion generating questions one after another and this process was the same to all the other sub- groups. Discussions involved a two-way information flow with groups of 6-12 members selected based on the activities carried out by each member of the group in relation to fishing. The discussions were in-depth qualitative data oriented held with small numbers of carefully selected respondents from the above sub-categories that were brought together to discuss a host of topics and issues such as the group's perceptions, attitudes and experiences. This was in line with Ton kiss 2004: 194, who said that; Focus groups are not simply a means of interviewing several people at the same time; rather they are concerned to explore the formation and negotiation of accounts within a group context, how people define, discuss and contest issues through social interactions.

As Ton Kiss [2004] suggests, using a focus group enabled me to elicit information not easily observable 'in the field' in order to explore the topics in greater depth. The discussion guide was devised in a logical order, so that 'warm up' questions were placed at the beginning and built up to the more important and complex questions towards the end (appendix V). The focus group was keen and lively, and I found that I did not need to prompt much to elicit the kind of information I required. Indeed, the discussion proceeded quite naturally along the lines of themes I had envisaged when writing the topic guide. The most difficult part for me was ensuring that everyone had the opportunity to express themselves and guiding, stimulating and facilitating the discussions were crucial to the success of the focus group discussions.

An important methodological assumption underpinning my choice of this method and mode of analysis is the idea that opinions, attitudes and accounts are socially produced and shaped through interaction with others [i.e. social constructivism]. The group context of my research was important for exploring the way in which the respondents articulated and justified their ideas in relation to others, placing the emphasis on fisheries management roles and collective responsibilities.

Further, the choice of this method was because, it is capable of generating first hand information from large sections of the population with in relatively a short period of time and leads cross-examined consensus built data especially on sensitive issues in addition to encouraging the spirit of participation which in turn leads to a wealth of data through intensive dialogue and probing.

Focus group method was used to supplement observation methods as in my case where I used observation as research method. This allowed me to elicit information and explore attitudes not easily accessible through observation alone. Not all issues are always and easily observable 'in the field', and focus groups allow members to define these issues in terms of their own understandings and concerns, producing shared and contested meanings.

Being that one of the key features of focus group research is its interactive quality i.e. unit of analysis being a group, not individuals and yet my topic was particularly suited to interaction in a group context, this enabled me to gain insight from different perspectives and allowed flexibility to pursue topics which arose through previous discussions and guiding, stimulating and facilitating the discussions was crucial to the focus group. Also it is usefulness to theoretical research as it seeks to explore socio-economic/cultural meanings, knowledges and discourses; the method was fit for use. Focus groups capture the inherently interactive and communicative nature of social action and social meanings, in ways that are inaccessible to research methods that take the individual as their basic unit of analysis [ibid: 198]. However, one methodological disadvantage is that although focus groups aim to reproduce the interactive aspect of naturally occurring social processes, they are not in themselves naturally occurring interactions. They offer no guarantee as to what people say, or how they interact, outside the research context.

### 3.7.1.3 Organolyptic test;

Observation as defined by Weick [1968], is the selection, provocation, recording and encoding of that set of behaviors and settings concerning organisms "in suit" which is consistent with empirical aims. The study was a naturalistic observational research I did not intervene at all. Under this method, direct observation of the fishery was carried out through taking a critical look at what was happening in some real-life situations and then classified and recorded pertinent happenings according to some planned scheme that composed of physical things and social processes. I was invisible and worked hard not to interrupt the natural dynamics of the situation being investigated. The observations, impressions and feelings were recorded in a note book following the guiding topics.

The choice of the method was because it is capable of providing a direct procedure and opportunity to physically see what is happening on ground and studying various aspects of unexplained observable behaviors and happenings. It provides researchers with ways to; check for nonverbal expression of feelings, determine who interacts with whom, grasp how participants communicate with each other, check for how much time is spent on various activities and observe events that informants may be unable or unwilling to share.

#### 3.7.2 Research Instruments;

Choosing appropriate instrumentation [surveys, questionnaires, etc.] is a vital part of conducting good quality empirical research and evaluation. It is common practice that research methods work hand in hand with their corresponding tools that guide the researcher during the process of data collection. Therefore, the instruments used for this purpose were four and included; Questionnaire, Interview guide, Focus Group Discussion guide, and Observation guide.

## 3.7.2.1 The Interview Guide;

A semi- structured interview guide was used for collecting information from the respondents of BMC category. The instrument was constructed with guiding questions that guided me during the course of the interviews. Before employing it to the actual field, the instrument was pre-tested and re-tested on a population that had similar characteristics like those of the study area population. This act was intended to verify the accuracy and reliability of this instrument before it could finally be employed to guide the interview method and process in collecting data from the BMC respondents.

The methodology for using this instrument involved following the questions on the guide while asking questions and noting down in a notes form the subsequent responses from each respondent interviewed. The choice of this instrument was because it allows more probing, it is non-restrictive, and gives more room for noting down all the relevant information from the respondents in addition to being user friendly with the interview method.

#### 3.7.2.2 The Focus Group Discussion Guide;

This instrument was constructed in an un-structured form with discussion generating topics which were used during meetings. The instrument provided a frame work of key aspects around which the investigative discussions were built. After construction, the instrument was also pre-tested and re-tested on a similar population to ascertain its accuracy. The topics such as; community awareness creation, its avenues, who does what during the processes, the dominant forms of conflicts, avenues of arbitrating them, etc guided me during the meeting and the responses generated were noted down in a note book. In brief, its application followed the focus group discussion methodology described under the focus group discussion method above.

During data collection, there was a moderator and a recorder. I introduced the session by introducing myself as the facilitator and introduced the recorder too. The participants introduced themselves with whatever names they wished to use. The participants were put at ease and the purpose of the FGD was explained, the kind of information needed, and how the information would be used.

The recorder kept a record of the content of the discussion as well as emotional reactions and important aspects of group interaction which enabled me to judge the validity of the information collected during the FGD. The Items recorded included; date, time, place, names and characteristics of participants, general description of the group dynamics [level of participation, presence of a dominant participant, level of interest], opinions of participants, were recorded as much as possible in their own words, especially for key statements, and emotional aspects [e.g., reluctance, strong feelings attached to certain opinions], among others. The duration of the FGD sessions typically lasted up to an hour and a half save for the first session which lasted longer than the following ones because all of the information was new.

# 3.7.2.3 The Observation guide;

The guide was constructed in a non-structured form with indicators that guided me during observation of some key features and aspects that were considered to be the yardsticks for measuring the performance of the BMCs. A list of observable aspects and phenomena with in the framework of awareness creation, formulation and enforcement of byelaws, and arbitration of fisheries conflicts and observable impacts was made and followed during the study process and the findings were noted down in a note book. The list included; fishing vessel types and their overall length, fishing effort per unit, catches, the fish landing site, the fish market, the general cleanliness of the beach, weighing scale and fish buying centers, the fish size, the fishing gears and methods used, publicly hanged notices used for awareness raising, and where possible, meetings and arbitration proceedings, among other things.

# 3.7.2.4 Questionnaire;

A self-completed questionnaire was used for collecting information from the FEW respondents as they could read and write for themselves. The instrument was constructed with questions that guided respondents during the course of completing them. Before employing it to the actual field, the instrument was pre-tested and retested on a population that had similar characteristics like those of the study area population so as to verify the accuracy and reliability of this instrument before it was finally employed in the process in collecting data from the FEW respondents.

The methodology for using this instrument involved distributing the instrument to the respondents and later collected as agreed after completion. The respondent him/herself reads the questions on the instrument and fills the provided spaces with appropriate responses. The choice of this instrument was because it gives respondents more room and time to think about the questions and for noting down all the relevant information in addition to being user friendly both, on part of the respondent and the researcher.

Table 4: Summary of the used Research Methods, Instruments andtheir corresponding Population category

Methods	Instruments	Population category
Interviews	Interview Guide	BMC & FEW
Focus Group Discussion	Focus Discussion Guide	BMU
Organolyptic test	Observation Guide	Observable phenomena

## 3.8 The Study Procedures;

The steps I took to accomplish the study were in accordance with the appended field work plan. They included; first making a pre-visit to the study area as a familiarization tour and to meet key local leaders to inform them of my intentions. This was followed by constructing my research instruments, pre-testing and retesting them. The second visit was for delivering introduction letters from my department to the concerned authorities at the district of study including; the District Fisheries Officer, the BMC chairperson, the Fisheries Extension Officer in charge the study area, the police and the LC I to make preparations for me to start the study which subsequently depended on the working schedule of the study population. The reason for following all these procedures was to ensure that I get data that would answer the research problem in particular and all the research objectives.

#### 3.9 Data management and analysis;

Qualitative Data Analysis begun after a section of data had accumulated and this provided me opportunity to take care of emerging salient aspects of the interactions in addition to enabling me make adjustments or restructure and where possible, examine emerging concepts which originally were not in the study design. This form of analysis involved considering qualitative data only since the study was interested in documenting in-depth qualitative data.

The data collected using FGDs was processed and analyzed following the these steps; after each focus group session I and the recorder met to review and complete the notes taken during the meeting as these were the right moments to evaluate how the focus group discussions went and what changes could be made in the topics for the next focus group. Also immediately afterwards, full reports of the discussions were prepared reflecting the discussions as completely as possible using the participants' own words. After the transcript of the discussion was prepared, coding was done following the topics and the participants' statements right away using the left margin. Finer sub-codes and comments were written in the right margin.

All the data was summarized in a compilation sheet organizing the findings per topic for each. The FGD interviews were numbered and key words were used to summarize group statements in the compilation sheet so as to go back to the full statement. Given that I had different categories of informants, summarizing the information from these categories was done on two separate compilation sheets. A systematic comparison was then made between groups on all topics using my objectives and problem analysis diagram as a framework for analysis and comparison.

This was followed by putting the major findings from different categories on one sheet by searching for recurrent themes in the transcripts, a search which was partly guided by the findings of existing research outlined in the literature review and partly a result of my own impressions of the discussion. I color-coded the transcripts into broad themes that were frequently mentioned and these themes were fed back into the initial research questions. Having established the main themes of the discussion, I conducted a close critical reading of these. I identified the different ways in which particular themes were talked about and constructed, looking at the type of language employed, rhetorical devices and images that fed into particular discourses, and reporting of the major findings of the FGDs was done in a narrative.

The data got using the other methods was properly handled and managed before it was analyzed. The management process involved; collecting data pieces for all the respondents, serially numbering and keeping them separately basing on the category of respondents. This was followed by going through each data piece carefully while noting down themes which were grouped and summarized by tallying while quoting verbatim important quotations to portray certain experiences in a vivid manner as given by the respondents to liven the data as well was done.

Inspection and editing i.e. deleting of items that did not generate the desired information was done by use of a code book prepared for assigning the responses codes which were later transferred onto a matrix. The said themes were developed basing on the objectives of the study and content analysis was used to check the authenticity of the data collected. After all the above processes, data were written down in a notes form. The analysis was guided by paying a careful attention to the purpose of the study, being patient, developing a creative insight, and involving a pure description of the events. In all cases, comparison of variables was done using tables and figures basing on items from the matrix.

### 3.10 Limitations to the Study;

While collecting data, I was faced with several limitations or constraints as it was anticipated before the process of collecting data. I was limited by the inconsistent work pattern of the fishers and their migratory nature of life that was inconsistent with my planed work schedule. Most fishermen work at night, sleep during the day, prepare their fishing gears in the evening and go back for fishing in the night, while others work during day. The problem here was finding appropriate time when they could be available for the interviews. I overcame this problem by finding out with the help of the BMC, FEWs, and the fishers themselves the appropriate time when fishers could be available for interviews. This aided me in rescheduling the interview time and subsequently I managed to interview all the required respondents.

I also faced the problem of respondents wanting to be paid before giving out their information since most projects have conditioned them to giving transport and lunch allowances whenever they need information from them. This is an inherited syndrome from foreign managed projects and most communities in Uganda have become accustomed to it. To respond to this challenge, I used to meet the cost of their breakfast or lunch depending on the time scheduled for the sessions and also explaining to them that the information needed was purely for academic purposes and in turn it could be used to help them as fishers. I equally used the local authorities to substantiate the essence of the study and the long run, respondents picked sense in the exercise and offered the desired information.

#### **CHAPTER FOUR; PRESENTATION AND DISCUSSION OF FINDINGS:**

# 4.1 Introduction;

This chapter presents, analyses, and discusses the study findings according to the study research questions. The findings are presented under themes or key issues and sub-themes and are written in their respective sub-chapters. They include; respondents' socio-economic bio-data, creation of community awareness, formulation and enforcement of fisheries bylaws, arbitration of fisheries conflicts, and the challenges BMCs face in managing the fishery.

#### 4.2 Respondents' socio-economic and Bio-data;

The respondents interviewed had some commonalities in terms of; age, education, ethnicity, duration of fishing, and gender; their fishing practices were diverse, thus making the groups far from being homogeneous. Despite the commonalities, the participants came from a variety of classes, educational and fisheries management levels hence having varying amounts of information on; cultural, social, educational and most importantly, fisheries management and development within and outside their surrounding areas.

See table below for the details about characteristics of the respondents interviewed during the study.

Characteristics																	
Category		Age				Sex		Education				Duration					
		20-30	31-40	41-50	51-60	61 -70	Female	Male	No. Educ	Primary	Sec. Sch	Cert	Diploma	Degree	0-10	11-20	21-30
BN	<i>1С</i>	1	5	4	0	0	3	7	0	0	8	2	0	0	4	4	2
FE	Ŵ	1	0	2	0	0	0	3	0	0	0	0	1	2	1	2	0
	FC	20	34	6	0	0	0	60	35	20	3	2	0	0	36	18	6
	BO	2	4	5	13	4	5	23	6	15	5	2	0	0	20	6	2
	BM & R	0	0	4	0	0	0	4	0	3	1	0	0	0	0	4	0
	FP	1	2	5	0	0	6	2	6	1	1	0	0	0	6	2	0
B	FM	3	6	1	0	0	3	7	6	3	1	0	0	0	5	3	2
M	GM & R	2	1	1	2	0	0	6	4	1	1	0	0	0	3	3	0
U	M	0	3	0	3	0	2	4	2	3	1	0	0	0	6	0	0
	С	7	6	2	0	0	5	10	8	5	1	1	0	0	12	3	0
ТО	TAL	37	61	30	18	4	24	126	67	51	22	7	1	2	93	45	12

# Table 5: Details of Respondents' Characteristics

## 4.2.1 Age;

All the respondents interviewed were below the age of 60. Among them, 37 were between the ages of 20 and 30, 61 were between 31 and 40, 30 were between 41 and 50, 18 were between 51 and 60, and 4 were above the age of 61 years representing 24.6%, 40.7%, 20%, 12%, and 2.7% respectively. The results show that fishing activities are mostly done by people of between the age of 20 and 40. This seemed to suggest that it is the age bracket when most people are very energetic and active

given that fishing activities require a lot of energy and commitment. It also conforms to the fact that persons below the age of 18 are not allowed by law to go fishing as a management measure that BMCs have vigorously enforced and those above 40 years are naturally ruled out by both; lack of enough energy and a mind set that fishing is for youths .

#### 4.2.2 Sex;

Nearly all respondents interviewed were males. Out of the 150 respondents interviewed, only 24 were females representing 16%, while the males were 126 representing 84% of the total number of respondents interviewed. The findings reflected that it is men who dominate the fishing industry and this seem to suggest that fishing is a male dominated activity basing on the above percentages. There is a naturally constructed gender division of labor in most activities that require a lot of energies and this is true with the fishing industry. This echoes MAAIF's 2003 view that women have traditionally been excluded and men at almost all levels dominate the fisheries sector and this domination, together with the lower status in many cultures around lakes, mean that women have not benefited from fisheries resources.

Traditionally, Women did not engage in actual fishing but of late, they participate in fisheries beach management practices such as being members on the BMCs as provided for in the BMU formation guidelines, fish processing and selling, among other selected areas. The results further show that it is men who entirely work as fishing crews and could be associated with the belief that women have bad omens and therefore not allowed to enter any fishing boat. Men also own most fishing boats, are the majority on the BMC, are boat and net makers and repairers, and do fish mongering and fish processing. It appears that women's low participation in the fishery is due to cultural restrictions and domestic workloads that they hold, including the reproductive responsibilities naturally given to them. These present a bad scenario as the management and development of the fishery requires full participation of all stakeholders, women inclusive. Also women have little or no access to finances required for fish business as they lack collateral and or adequate savings. The above reasons have led to the shunning of the activity by women [LVFO 2001]. The view that men own more boats than women is indicated in the table below;

SEX						
Male						
23						
	SEX Male 23					

Table 6: Ownership of Boats by the different sexes

## 4.2.3 Education levels;

On the level of formal education, the study revealed that; 67 of the respondents had no formal education, 51 were of primary level, 22 had secondary level, 7 possessed professional certificates, and 1 had a diploma, while 2 were graduates representing; 44.7%, 34%, 14.7%, 4.7%, 0.6%, and 1.3% respectively. This is suggestive of the fact that fishing is an activity mostly practiced by people with no and or less education. From the findings, the graduates came from the category of Extension Workers who are actually government employees and the less educated and non-educated came mostly from the BMU category with the fishing crew sub-category having the highest number [35] of total illiterates followed by chatterer sub-category with 8.

From the study, it was noted that 94% of the BMC members had attained some formal education and only 6% were without such education. This is in contrast with BMU category where the majority was very illiterate. At landing sites compared to other areas, because fishing gives immediate money, most children abandon schooling in favor of fishing causing a high number of illiterate fishers. The findings reveal that most BMC members have education and this seem to be the factor for their success in performing their designated roles. This is because their subordinates seem to recognize them as people with capabilities of leading them despite deficiencies in management abilities. The BMCs as the study revealed, were equally getting basic education through workshops and other trainings they under go to equip themselves with skills for managing and developing the fisheries sector.

Management of the fisheries resource like any resource requires some degree of education to be able to redirect such resource users. However, according to Zwieten at el [2003], training of managers for adequate systems is training of abilities to learn and decide in a collective of stakeholders and that such training must be suitable for the specific users, and adequate for the scale of management. Education allows individuals to read, comprehend and when need arises collect and translate useful information from and to all fisheries stakeholders. They can also disseminate information ably and even enforce its usage especially by the fishers, formulate fisheries byelaws, and arbitrate fisheries conflicts among fishing communities. It should be noted that education has an impact on any resource in terms of its degree of exploitation as educated people tend to be very easy to train, manage and redirect as opposed to the others.

Through observation, another reason that could explain why most fishers are uneducated is that fishing requires no formal training, and as such, is an immediate form of employment for the uneducated and yet those with formal training look down fishing as an occupation. However, formal training is very important in the exploitation of any resource if messes are to be minimized. A low level of formal education coupled with few alternative income sources has negative implications on the fisheries resource especially in terms of; fishing effort and management.

According to FAO, 1996, fisher folk when compared with other rural residents say farmers, have been found to have slightly higher fertility. This is in line with a set of conceit attitudes towards family formation, which point to earlier age at marriage and higher number of children desired. Given that most fishers are uneducated, they find no reason for educating their off springs and this is coupled with the need for acquiring cheap fishing labor force. The circumstances of fishing populations are of the kind typically conducive to high fertility: families with an abundant labor force are at advantage in the exploitation of fishery resources — because of open access — and a large offspring facilitates a strategy of diversification of sources of fishing. Populations with high levels of education see having many children as a burden

which is the opposite with less or uneducated ones. There is a relationship between level of education in regards to attitudes, behavior of fisher folk and their perceptions of changes in fisheries resources. People who show greater concern for environmental issues and the impact of population growth in the exploitation of these resources are those with some reasonable education.

The fisheries industry is yet to experience a different trend in terms of occupational mobility. In Malaysia, there was an overall decline in the number of coastal fishers; this decline is also reflected in an inter-generational occupational mobility out of fishing into other occupations in the service sector or into unemployment. Fore example, in the Philippines and Tanzania, the number of coastal fishers started to decline [FAO2003]. A plausible explanation for these changes could be that in many countries, in the context of declining catches and income per fisher on the one hand, and economic growth and rising levels of education on the other hand, alternative and economically more rewarding employment opportunities have developed outside the fisheries sector, facilitating vocational mobility. Government policies aiming at a reduction and limitation of fishing effort, conservation, and the rehabilitation of fisheries resources could also have played a role in forcing fisher folk out of their traditional occupation.

## 4.2.4 Duration of fishing;

The study revealed that all the respondents interviewed had stayed in the fishing field for some time. Among them, 93 had operated for between 0-10 years
representing 62%. Those that had operated for between 11-20 years were 45 thus representing 30%, while 12 of them had operated for between 21-30 years and these were 8% of the total number of the respondents. From the findings, no one among the respondents had participated in the fishing sector for than 30 years.

Regarding experiences, most of the respondents had reasonable experiences in their respective areas as they had worked in the fisheries industry for relatively long periods. This was an indication that they had evolved through several fisheries management styles and regimes hence had a wide range of experiences and information to offer to the study. Managing experienced fishers can be very easy but at times very cumbersome. If such people were initially well redirected, managing resources becomes very easy as they at times act as advisors as well. Situations were such fishers were indoctrinated by their super-ordinates to see things in a prescribed direction, redirecting them become very tricky. It should be noted that the experience and expertise for both the fishers and BMCs are prerequisites for developing and managing fisheries programs that require community involvement.

#### 4.3 Creation of Community Awareness by BMCs;

The study sought to investigate the extent to which BMCs have created community awareness in the process of managing and developing the fisheries sector in Uganda. Under this, several findings were established as indicated below; information on several issues is collected and disseminated by the BMCs and used by the fishers just as the idea was conceptualized the study revealed. According to the respondents, this is intended to create community awareness among the fishing populations and other stakeholders on and around all lakes in Uganda and that this awareness creation is done through three processes namely; information collection, dissemination, and usage.

# 4.3.1 Information Collection;

Information collection is one of the roles BMCs are meant to play in the process of managing the fishery. Under this, the study revealed that the first thing that BMCs do is to collect information for and from the fishers and other fisheries stakeholders for creating awareness among the fishing population as their major aim. A respondent said '*members of the committee collect information from us whenever centre requires it and also from the centre to us whenever centre wants to send us information say on licensing*'. According to the collected information, it can be thematically classified as; legal, health, financial, and fish related issues.

#### Legal issues;

- Law enforcement programs especially, Monitoring Control and Surveillances
   [MCS]. When is the program to be conducted, who should be involved, what the beaches to be affected, etc.
- Fishing vessel licensing programs. Information on this includes; the number of boats eligible for licensing, days for the licensing program, the amount of fees each boat is to pay in relation to whether one is a national or not, the recommended boat sizes allowed to license, etc.

- Fishing using recommended gears and methods and what the recommended fishing gears and methods are. The BMC gets information such as; which gears are being used for fishing, where are they used, who is using them, where are catches sold from, where the gears are kept after use, and the general level of illegal fishing on the lake.
- Existing fisheries laws, rules and regulations. They make them available to the fishers, interpret them for the fishers, and report those that are becoming invalid.
- Piracy and security on water. Information on; areas of insecurity, time when it is insecure, those that cause insecurity, number of those so far affected, and the government responses.
- Recommended beaches. There are some beaches that are closed for purposes of good management and constant monitoring fishing activities.
   BMCs compile this information and send to the Department of Fisheries Resources.
- Restrictions on fish sizes in relationship to different fish species caught. BMCs get information from the Department of Fisheries Resources and give it to fishers such as; recommended size of Nile perch and Tilapia is 21 and 11 inches respectively.
- Existing fisheries conflicts and disputes such as; who wronged who, what was the cause, when and where is the arbitration, & what penalties are available, among others.

# Financial issues;

Ways of accessing loans. Which fishers are eligible of accessing loans, from what financial institutions can fishers access loans from, the mode of repayment, the security required before getting a loan, among others.

### Health issues;

Sanitation and hygienic situation at beaches. Here, who does not have a toilet, cases of related epidemic, the available medical help, days designated for general cleaning of beaches, etc.

## Fish related issues;

Fish catch data such as; number of fish caught, the total weight of the fish caught, the fish species caught, and number of boats fishing. This is done on a daily basis for the monthly compilation.

Other information collected includes; recommended overall length of fishing crafts, training workshops for fishers, existing fisher groups at landing sites, post-harvest fish handling techniques, and alternative income generating activities, among others. It was established that these aspects are widely known to most fishers as the table below clarifies.

		[N=150]
Aspects	No. of	Percentages
	Respondents	
Fish catch data	142	95
Fishing vessel licensing	145	97
Recommended Fishing gears & methods	132	88
Level of use of illegal fishing	141	94
Accessing loans	82	55
Sanitation and hygiene	148	99
Existing fisheries regulations and rules	149	99
Piracy and security on the lake	120	80
Recommended fish landing sites	139	93
Recommended fish sizes	149	99
Laws enforcement programs	89	59
Fisheries conflicts and disputes	123	82
Recommended fish craft length overall	146	97
Others	107	71

# Table 7: Level of fisher Awareness about the information collected;

<sup>1</sup> The total percentage and frequencies exceed the real ones due to multiple responses from the respondents.

Just as S.R.J.Bland [1995] said that participatory fisheries management programs are essentially community awareness raising campaigns, information on several issues is collected and disseminated by the BMCs and used by the fishers. This seems indicate that awareness is created among the fishing populations and other stakeholders. The study revealed that BMCs have done a great job in the field of conscientisation especially among fishing communities. One fisheries officer noted that 'the department of fisheries uses the locally generated information for planning purposes, both at local and national levels'.

The above quotation is suggestive that BMCs collect information to provide a basis for national fisheries planning including policy formulation, management and development under the supervision and guidance of resident fisheries officers. This coincides with Anthony [1993] who suggested that the development of effective and efficient national fisheries policies demands information to provide clear understanding of the position and status of the fishery on the regional, national, and local levels. Information is also a social need and therefore the need for socioeconomic information that have social and economic implications, it must be readily available and in a correct form. From the management perspective, I deduce that knowledge of information by the fishers leads to a positive perception towards the set management measures and can enhance further the development of management regimes that involve community participation.

The BMCs collect the information from and for fishers from their areas of jurisdiction, the department of Fisheries Resources and other intermediary organizations such as donor projects, and research institutions like LVFO and FIRRI take the responsibility of utilizing this information for planning and decision making purposes. Hog Garth et al. [1999] in their discussion pointed out that actual

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information that is required to manage the fishery depends on who has responsibility for each role and on what basis decisions are made. Their considered stakeholders rhymed with the stakeholders and responsibilities that are operational in the Uganda fisheries the study revealed.

BMCs promote community based information collection, use and dissemination to fishing communities and other stakeholders just as MAAIF [2003] had planned it. However despite this, fishers have not totally changed their attitudes and behavior especially in regards to use of illegal fishing gears and methods as was seen through observation. Fishers still capture immature fish though the rate of capture seems to have greatly reduced compared to before the introduction of these BMCs. The causes for the capture of immature fish is attributed to several factors and these include; the high poverty situation in Uganda, the poor and inadequate enforcement of fisheries regulations, and the overexploitation which has left no mature fish, among others.

#### 4.3.1.1 Aims for information collection;

The aims for BMCs collecting information as revealed by the study were very similar across all respondents. Of the respondents interviewed, 120 [ 80%] attributed the aim to the need to create community awareness so as to effectively manage the fisheries resources in particular, and the entire fisheries sector in Uganda. 22 [14.7%] respondents attributed the aim to making all fisheries stakeholders properly plan for the fishery. The other 8 [5.3%] believed BMCs do this as part of their responsibilities. Please see table below for the details;

#### Table 8: The details on the aims for information collection

Aims	No. of respondents	Percentage
The need to create community awareness	120	80
Proper planning for the fisheries	22	14.7
It is part of the BMCs' responsibility	8	5.3
Total	150	100

[N=150]

While as some respondents gave varying reasons for colleting information including making all fisheries stakeholders properly plan for the fishery as being part of the BMCs responsibilities, the majority of the respondents interviewed attributed the aim to the need to create community awareness so as to effectively manage the fisheries resources in particular, and the entire fisheries sector in Uganda as a respondent was quoted saying 'lack of information means you do not know so you can't plan but since there is available information from the fishery, management has become very effective'.

#### 4.3.1.2 The information collection strategies;

The study established according to a respondent from the BMC interviewed 'that for BMCs to collect information, they use the following strategies; conducting meetings, personal contacts, using the secretaries for information and publicity, holding workshops and seminars, monitoring, surveillances and control approaches, field visits to places like; fishing grounds and neighboring BMCs, and telephoning which is the quickest way'. These represented 100%, 100%, 99%, 99%,

46%, 100%, and 62% respectively. The study also established the reasons why BMCs prefer these strategies over the others not mentioned as; the strategies are very effective for information collection from all circles, they are affordable, and that most of them especially meetings generate cross-examined ideas and information. Further, it was revealed that success of deploying these strategies has levels.

Awareness creation entails use of realistic strategies so that the intended audience can capture the desired information. The collection of information takes strategies which are appropriate enough and very affordable according to the BMCs. According to the strategies mentioned, it was noted that meetings were the most used strategy for information collection and this seem to suggest that they are very useful for getting information. A fisheries officer said 'meetings are the most recommended strategy for collecting information because they can collect information from all circles; they are affordable and generate cross-examined ideas and information'.

However, despite the officer's remarks, the study revealed that meetings like any other strategy present challenges like; some people's views can be missed especially that of the shy ones who fear to express themselves in public. One BMC member said 'the above scenario is solved through employing several other strategies which among others include personal contact where an individual is contacted face to face and alone. My observation and therefore deduction is that use of many strategies generates thorough and cross-examined information which is useful for decision making and consequent planning for any resource fisheries inclusive. The study indicated a very high success on the part of the BMCs in using these strategies which is very vital for the management of the fishery. Fishers are very complicated that if one fails to employ the right strategies and correctly, the level of success registered is always very minimal and therefore, triangulation of strategies is the way to success. The environment under which information collection is done greatly determines the amount of success registered. However, from the study, it was also noted that fishers are found of giving information which they believe is the required one. This causes deviations and contradictions in data got during collection.

#### 4.3.1.3 The BMC sources of information;

The study revealed that BMCs source their information from the following; key informants through; voluntary and induced efforts, radio announcements, neighboring BMCs, general fishing communities, fisheries staff and DFR, books, news papers, and other written materials, and leaders. '*We use key people we know can give us leading information, radios also give us information, and we read written literatures, among others*' a BMC member was quoted saying. From the study findings, on average, 93% said that BMCs source their information from key informants, whom they put in place to spy around and inform them about issues of concern, neighboring BMCs, the general fishing communities, and the fisheries staff and DFR, while only 7% mentioned books, news papers, and leaders as potential sources. See the table below;

 Table 9: Comparison of sources of information for BMCs

Sources of information	No. of Respondents	Percentages
General fishing communities	148	99
Key informants	143	95
Neighboring BMCs	141	94
Fisheries staff and DFR	123	82
Books	57	38
Political leaders	27	18
News papers	17	11
Radio announcements	7	5

[N=150]

The total percentage and frequencies exceed the real ones due to multiple responses from the respondents.

The above sources of information seem to have great impact on the information output for BMCs. From the study findings, key informants, neighboring BMCs, the general fishing communities, and the fisheries staff and DFR are the major sources of information for the BMCs, but books, news papers, and political leaders as are minimally used sources. This situation suggests that human beings are the main source of information for the BMCs and those BMCs have been able to build good relationships between themselves and the fishers. The other least used sources could be that they are very few, rare and complicated to be interpreted by most of the BMC members given that their level of education is not so high. The fact that BMCs use effectively all the available sources of information may explain why they have not scored 100% in awareness raising among fishing populations.

#### 4.3.1.4 How BMCs ensure getting correct Information;

The BMC publicity secretary said 'to ensure that the sources used to collect information give out the desired information, we mostly employ a friendly approach to fishers, multiple sourcing and cross-examining all the information collected from these sources, and conducting sensitizations where information giving and collection are both achieved are used. Also, most BMC members are fishermen as well therefore; they are information givers as well as collectors so, this ensures getting the desired information by the BMC. Also we the BMC members have been trained and are still being trained to collect information and we therefore put emphasis on any available sources.

The findings seem to agree with what [Hoggarth et al. 1999] put forward. To him, the actual information that is required to manage the fishery will depend upon who has responsibility for each role and on what basis decisions are made. Three major categories of stakeholders or individuals, groups, or organizations with an interest or stake in the fishery will usually stake responsibility for one or more of these roles: government departments e.g. department of fisheries, intermediary organizations e.g. NGOs; donor projects, research institutions etc, and fisher communities.

### 4.3.2 Information Dissemination;

The study revealed that BMCs create awareness through disseminating information collected. The majority of respondents [93%] agreed that BMCs to a bigger extent disseminate the information they collect to fishing communities and other interested stakeholders and that this information is widely accepted in most cases by the

majority fishers save for a few fishers especially those that indulge in bad fishing activities tend to isolate themselves from it. Only 7% said that BMCs have not done well in the area of information dissemination. When asked why they do so, 100% of the BMC members gave the reason for disseminating the collected information as; to create awareness among the fishers and other fisheries stakeholders who put the information to use so as to properly manage the fisheries resources, and that it's also a requirement by the fisheries department and the district fisheries staff in particular. A member of the crew category said 'the BMC members give us information on all issues especially of law enforcement and security'.

It was further established that BMCs ensure that fishing communities accept the disseminated information; by packaging the information in a friendly and enticing fashion where the recipients are lured to accepting with hesitations. At times, fear appeals such as; issuing threats, warnings, and instituting punitive measures such as; arrests and imprisonments are used depending on the nature of the information. The chairman BMC said 'whenever we sense some resistance in information acceptance, we use words that create fear within the fishers and as a result, they accept it but this depends on degree of urgency and the related undesired implications in case of failure to adhere to it'.

Conducting wide spread sensitization meetings through which fishers are reminded about the value of putting in practice the disseminated information, was the other strategy used by the BMCs the study revealed. These practices seem to indicate a top-down management modal of information dissemination where "empty recipients" are made to act with out having any input. Good practice would entail recipients also having inputs as well as the BMCs. The above scenario can not allow dissemination to be very successful as the study seems to suggest. The technocratic dissemination approach may be part of the cause of resistance because a natural barrier remains between managers and the fishers- yet they are supposed to be comanagers. See the table below for their respective numbers and percentages.

Table 10: The Strategies for ensuring compliance

		[N=150]
Strategies	No. of respondents	Percentages
Friendly information packaging	54	36
Use of fear appeals	142	95
Conducting sensitizations	121	81

The total percentage and frequencies exceed the real ones due to multiple responses from the respondents.

BMCs have been very effective in the field of information dissemination. The study revealed that dissemination has been sufficient, the information is reliable enough and that the information is made available freely to all fisheries stakeholders without compromising its sources. This coincides with MAAIF's [2003] view that the institution has been able to do this while recognizing the traditional values and knowledge of the fishing communities. I believe this is practically possible because the members of these institutions live and socialize with the fishers in most times unlike other stakeholders. BMCs have afforded effective communication between all participants to create awareness among fishing communities which is essential for successful management of the fishery. As revealed by the study, BMCs have and are still carrying out training and education undertaken to increase skills and knowledge of the present as well as for future generations which ensures sustainability of the resource. It should also be recalled that the BMU guidelines [2003] mandate local governments in line with the decentralization policy to be part of the system that manages the fisheries sector like in information dissemination.

Information dissemination has been very effective as was revealed by the majority respondents who said that BMCs to a bigger extent disseminate the information they collect to the fishing communities and other interested stakeholders and that this information is widely accepted in most cases by the majority fishers. Information dissemination in this case is purposely for creating awareness among the fishers and other fisheries stakeholders who are required to put the information to use for effective management of the fisheries resources as required by the fisheries department and the local fisheries staff in particular.

These findings seem to indicate that the level of awareness is very high since almost every one understands the relevancy of the information collected. However, despite all these efforts, some few fishers still go a head to do the reverse of what is expected of them hence hurting the fishery, especially those that indulge in bad fishing practices. The reasons for non compliance could be due to; poor dissemination approach which is just planted to fishers without their participation during the time of coming up with such approaches. This greatly reduces the degree of compliance and full consent given that the enforcement methods used are equally poor.

#### 4.3.2.1 The Strategies for Information Dissemination;

It was established from the study that BMCs use several strategies to disseminate information to the fishers in the process of creating community awareness and these included; conducting general meetings, personal contacts, pinning up/hanging up circulars and notices in public places, and radio announcements. Among these, the radio medium is the least used compared to the others. Out of the 150 respondents interviewed, 121 said that information dissemination is done through meetings, 56 gave personal contact, 130 gave pinning/hanging up circulars and notices in public places, while 15 mentioned the radio strategy.

During general meetings, desired information is put across to members in attendance and discussions are allowed. Here, fishers ask any questions and answers are readily given for proper perception. Under personal contacts, BMC members contact individually only those they feel are concerned with the issue at hand and in the process, the message is put across. At most beaches, there are some common places where people usually gather to play cards, watch films or sports, or hold conversations. Such places are the ones where pinning or hanging of circulars and notices is done and are very ideal for conveying massages and acting as constant reminders and according to the findings, have proved very effective for information dissemination by the BMCs.

Generally, meetings transcend lots information while hanging notices in public places gives room for constant reminders to all fishers to access information any time. These avenues are very relevant, affordable and efficient except radio announcements and given the BMCs are financially lacking, this may explain the reasons for using these avenues as indicated by the study. The radio medium is the least used as it is expensive and also the nature of work for fishers doesn't permit them very much to use this avenue as they are usually engaged all through in preparing, setting and keeping their nets on the lake.

Ensuring information acceptance especially on issues considered hindering one's financial activities is a hard thing. However despite of the above scenario, BMCs have to a big extent registered great success in ensuring that fishing communities accept the disseminated information as planned due to the techniques they employ. Given the fact that most fishers still think that resource managers are there to block them from carrying out their fishing activities, information to be passed onto them must be persuasively presented to ensure universal acceptance. Fear appeals should be used along side other approaches like; arrests and court procedures- depending on the nature of the information and their degree of compatibility, urgency and the related implications in case of non-adherence. The conditions in which fishers operate have made them hard-to-change people and therefore instilling fear in them is of paramount importance as it acts as a driving force towards adherence as the saying goes that "when peace fails, force should be applied".

## 4.3.3 Information Usage;

The study established that information collected is used by fishers and other fisheries stakeholders as revealed by all respondents. Mr. Wandera, a fisher was quoted saying *"all of us the fishers, fisheries staff, politicians, the Department of* 

Fisheries Resources, and consumers use the information on the following aspects; fishing practices, gears and methods, maximizing fish catches, protecting, preserving and processing fish, maintaining hygiene and sanitation at beaches, licensing, minimizing fisheries conflicts, reporting crimes to BMCs and other fisheries authorities, on security issues such as piracy, accessing loans, and fish marketing". It was noted that some aspects are more key in terms of applicability. See the table below;

Table 11: The level at which fishers Use the Information;

Aspects	No. of respondents	Percentages
Fishing	137	100
Protecting and Preserving fish	96	70
Fish Processing	56	41
Maintaining Sanitation and hygiene	134	99
Fishing Vessel Licensing	136	99
Minimizing fisheries conflicts	123	90
Reporting	125	91
Accessing loans	23	17
Fish marketing	45	33

The total percentage and frequencies exceed the real ones due to multiple responses from the respondents.

Fishers are among the major final users and the target for disseminating information collected. Acceptance of information can be measured by the level of fisher compliance as in the process of information use. The information collected and disseminated is used by the fishers and other fisheries stakeholders in their day-today fishing activities. Fishing using recommended practices is an important area where much emphasis is required for better fisheries management and development. A fisheries staff observed, "Most information is targeted for fishers since they directly and comprise the majority resource exploiters and users". It is a common practice for fishers to prefer using destructive fishing gears and methods because these are capable of catching more fish compared to the recommended ones. One fisher was quoted saying "that in addition to maximizing fish catches, the said gears are cheap and yet it is not very easy to steal them as they are taken away immediately after use compared to those gears that are set and left in the waters overnight which makes them vulnerable to thefts".

Protecting and preserving fish breeding grounds is yet another aspect where the collected information is used. A fisheries staff related "*Fish breed in vegetations along the shore line and in rocks and therefore fishers set their nets in these places which conflicts existing fishing laws*". *Therefore, BMCs have a duty of ensuring that fishers are aware of this for application when time for fishing comes*". Fish processing is also another area where disseminated information is used. Fish processing at beaches entails three well-guided methods namely; smoking, sun drying and salting but there is a common practice among fishers to ignore the required principles of processing and resort to using what they see as cheap and quicker thus producing poor quality fish products.

The fisheries staff further said "Where as maintaining hygiene and sanitation at beaches should be an obligation for all beach members, others take it to be optional thus calling upon the attention of BMCs to enforce the application of the disseminated information". Through observation method, it was found out that most people at beaches have no toilets and therefore, if no clear information is made available to this population about its health implications, people's lives are endangered. Fishing vessel licensing, minimizing fisheries conflicts and disputes, reporting crimes to BMCs and other fisheries authorities, on security issues, accessing loans, and fish marketing are other area of concern. These are very critical issues that concern all fisheries stakeholders and without their due consideration, the fishery can collapse. What is important to note here is that the information comes from one source to recipients who must accordingly and this seem to explain the cause for the disobediences that characterize fishing communities.

#### 4.3.3.1 Ways BMCs ensure continuous use of information;

On how BMCs ensure that fishers continuously use the disseminated information correctly and effectively, the chairman BMC was quoted saying "fishers are registered with all their fishing gears and are then monitored daily on landing, Byelaws are formulated to back up the information use and are accompanied by sanctions such as; paying defined fines or suspensions from fishing or both, arrests, and issuing warnings to culprits. Enforcing the information use through patrols especially lake patrols, hanging of posters or notices in public places that act as constant reminders, and conducting regular meetings through which fishers are reminded about the dangers and benefits of non-compliance and compliance respectively are also done".

In addition to the above, the high level of fishers' acceptance of the disseminated information was attributed to the need to meet the required fishing standards so as to avoid being victimized by the BMCs and other fisheries management authorities, improve on their financial gains from fishing through accessing loans, maximize fish catches through using the recommended fishing methods and gears, for gaining access to fishing, and being accepted to operate in particular areas. See table below for comparisons.

Table 12: The comparison of the different ways BMCs ensurecontinuous information use

		[N=150]
Ways	No. of Respondents	Percentages
Registration of fishers	145	96
Making fisheries bylaws with sanctions	98	65
Conducting lake - wide patrols	148	98
Hanging notices and posters	149	99

The total percentage and frequencies exceed the real ones due to multiple responses from the respondents.

To ensure continued correct and effective information use, a lot has to be done. In this process, BMCs conduct wide spread sensitizations through which fishers are reminded about the value of putting in practice the disseminated information. This approach ensures that fishers are constantly kept aware of their requirements and it is carried out as a routine and complemented by ensuring that all fishing boats and fish catches are by mandate only land at the officially designated or gazetted beaches to enable close monitoring of use of recommended fishing gears. BMCs have ensured that fishers are registered with all their fishing gears and are then monitored daily at landing so as to see whether their belongings conform to the disseminated information.

A BMC member said "Also Byelaws have been made to that effect and are backed up by sanctions such as; paying defined fines or suspensions from fishing or both incase of non-compliance. Issuing of warnings to culprits, conducting patrols especially, lake patrols, hanging of posters or notices in public places that act as constant reminders, and conducting regular meetings from where fishers are reminded about the dangers and benefits of non-compliance and compliance respectively". This is a clear indicator that there are mechanisms for compliance.

In relation to the above, BMCs have attained high levels of fishers' acceptance towards the disseminated information and this is likely to be due to the need for fishers to meet the required fishing standards so as to avoid being victimized by the BMCs and other fisheries management authorities and as a result, gain access to fishing in particular areas so as to maximize fish catches using the recommended gears and to improve their financial gains.

### 4.4 The Formulation and Enforcement of fisheries byelaws by BMCs;

Respondents were asked whether BMCs formulate fisheries byelaws, all respondents agreed that BMCs formulate fisheries byelaws used in the management of fisheries resources in their areas of jurisdiction as one fisher said "our BMC puts laws for us to prevent us from using prohibited fishing gears and those who defy the laws are punished". The study established that during the process of formulating byelaws, BMCs play the following roles as one BMC official explained; "we draft byelaws, mobilize the fishers to participate in the formulation exercise, record the approved byelaws, preside over and moderate the formulation meetings, and circulate and publicize written byelaws to all fisheries stakeholders". The study further found out that BMCs formulate byelaws in two situations; when there is a crisis that requires a law to be set to prevent similar situations from happening, and while others are made in advance to avoid critical situations from happening i.e. as mitigation measures.

During the study, it was also established that BMCs formulate byelaws for some reasons. When asked why BMCs formulate bylaws, one Mukasa said "to protect fish from over-exploitation resulting from over-fishing, and to ensure a harmonious fishing relationship through minimizing fishing conflicts and disputes among fishers. To others, redirecting the management of the fisheries sector so as to achieve its development was given as the purpose for bylaw formulation, yet some attributed it to ensuring good health resulting from good hygiene and sanitation at beaches. It was found out that all the respondents at least knew some reasons why byelaws are formulated by BMCs. This signified the level of awareness created by the BMCs about byelaws and the corresponding impact created forth with. See the table below.

Table 13: The views respondents advanced for bylaw formulation

		[N=150]
Reasons for formulation	No. of	Percentages
Protecting figh from over exploitation	149	<u></u>
Protecting fish from over exploitation	140	98
Ensuring good fishing relationships	129	86
Redirecting the fisheries management	143	95
Ensuring good health and hygiene	139	93

The total percentage and frequencies exceed the real ones due to multiple responses from the respondents.

The study revealed that formulation of Fisheries Byelaws takes place at most beaches and is directed by the BMCs. This coincides with [MAAIF, 2003] that fisheries management abounds with laws, rules, and regulations in most countries and many of them are quite specific and well intentioned. For effective management of any resource, there must be guidelines to follow in exploiting it. BMCs formulate fisheries byelaws used in the management of fisheries resources in their areas of jurisdiction. In the process, they draft byelaws, mobilize the fishers to attend byelaw formulation meetings, moderate the formulation exercises, record the approved byelaws and circulate written byelaws [publicizing] to all fisheries stakeholders.

It should be noted that formulating byelaws is in consonant with what MAAIF [2003] further put forward as one of the responsibilities of BMCs. MAAIF put it that, the effective capacity of many fisheries agencies to regulate what goes on in the widely scattered and often isolated fishing grounds is distinctly limited. These seem

to suggest that BMCs were formed to fill in this gap. Under these conditions, the delegation of fisheries management and allocation of decisions to the local level based on the findings appears to be more effective than the management efforts with distant, under-staffed and under-funded national government fisheries agencies could provide. The reasons advanced for BMCs to formulation byelaws which included; redirecting the management of the fisheries sector so as to achieve its development agrees with what MAAIF advanced. It is equally worth noting that fishers knew the reasons why byelaws are formulated. This signified the level of awareness created by the BMCs on byelaws and the corresponding impact created.

#### 4.4.1 The Byelaws formulated by BMCs;

The study also sought to find out the extent byelaws are formulated by BMCs. Under this, particular interest was put on finding out the bylaws formulated and the following were some of the byelaws found in existence;

- All fishing boats must land at designated or gazetted beaches. This as was established was meant to closely monitor use of recommended boat sizes and gears and this was given by 98% of the respondents,
- All fish must land at the officially designated beaches. This was true for all fish landed/sold for both local and international markets to ensure that recommended fish sizes are caught and this law was mentioned by 99% of the respondents,
- No washing of clothes, utensils or bathing from the lake was another bylaw made intended to avoid soap from affecting fish since it is a detergent,

- Another law was; no using one's boat without his or her permission. It was found out that originally, fishers used to have a tendency to use their fellow fishers' fishing crafts with out their permission which always caused conflicts among them. So putting this law in place greatly reduced such conflicts,
- No going for fishing when drunk was a byelaw made to ensure that drunken fishers are protected by this law from falling into the lake during fishing since alcohol begets death and this has to some extent reduced related drowning according to the findings,
- No selling and buying fish at night and from the water by fish mongers is a law where fishmongers are not allowed to buy fish from the water but fish is waited for from the land. This law ensures that all fish caught is landed to enable fish catch data collection and also to eliminate the act of fishermen cheating their bosses after selling in the lake, and

The study further revealed that BMCs have been successful in byelaw formulation. All respondents said that BMCs have performed greatly in the field of byelaws formulation as one respondent was quoted saying "*BMCs have been able to provide a legal framework on almost all aspects that affect the fishers in particular and the fisheries sector in general that national legislation doesn't address*".

The formulation of both fisheries and population policies requires reliable statistics on fisher folk. The first step should be to gather basic information on the demographic and socio-economic characteristics of fishing communities (family size, growth rate, migration patterns, sources of employment and income, incidence of poverty etc.), with adequate attention to gender-based specificities. Securing the needed information is feasible, starting from unexploited household data present in population censuses or household budget surveys and completing them with case studies investigating the structure of the fisheries sector. See the table below;

Table 14: Respondents' awareness about the formulated bylaws

[N=150]

Bylaws formulated	No. of Respondents	Percent
All boats must land at designated beaches	148	98
Fish must be landed at official landing sites	149	99
No washing or bathing from the lake	138	92
No using another's boat without permission	150	100
No selling fish at night	120	80
No fishing when drunk	86	57
No buying fish from water	79	52
No fighting on the water	128	85

The total percentage and frequencies exceed the real ones due to multiple responses from the respondents.

From the table, the set byelaws look to be very popular according to the responses received from the respondents however; the challenge still remains the extent to which these laws are adhered to. As regards the success, BMCs have been to a big extent successful in byelaw formulation as evidenced from the study findings. BMCs have been able to provide a legal framework on almost all aspects that affect the fishers in particular and the fisheries sector in general that national legislation doesn't address including proving for byelaws that strengthen these national ones. This conforms with what North [1990] put forward that a legislative framework is a necessary condition for a successful fishing industry, in particular, fisheries management, and economic gains associated with it can not succeed without a system of regulation which is respected by the fishing communities. According to MAAIF [2003], BMCs were formed to give authority through formulating byelaws for fishers operating from beaches to fish in particular areas, for particular species using recommended gears, among others. It appears that BMCs have derived their powers as mandated to formulate byelaws.

#### 4.4.2 Strategies BMCs use to formulate byelaws;

The findings indicated that during the formulation of these laws, BMCs employ the strategy of; holding general meetings where byelaws are proposed and made by the general public, and holding BMC meetings where byelaws are made solely by the BMC executive members with out involving fishers. Under any strategy, the laws are finally endorsed by the sub-county Local Council III before they become effective and operational the study revealed.

The following were further findings in line with above; that all bylaws made under both strategies are promulgated by publicly reading to the fishers in general meetings, pinning them in public places, and other copies are put in the BMC offices for use by any interested persons, that BMC members prefer using these strategies because; general meetings give all fisheries stakeholders chance to make their own byelaws, while the other strategy respondents revealed is ideal when handling critical areas essential for management and development of the fishery and therefore involving fishers would defeat the mission.

BMCs formulate byelaws under two major situations as noted from the findings. During crisis and that is when there is a problem that requires a law to stop or remedy undesirable situation[s]. There are some problems that take place in an area that had not been known as a source of troubles. Therefore to stop such crises, relevant byelaws are formulated to protect against the associated problems. The other situation is when the BMCs suspect that an area is very vulnerable to be a source of trouble. The laws under this are made in advance as mitigation measures to avoid critical situations from happening in future. This is the most recommended approach to problem solving as opposed to the other where remedy is sought after problems have occurred. Such laws have appeared to be of great help in the management of the fisheries resources in Uganda and the world over.

Byelaw formulation requires being strategic if success has to be registered. This seems to explain why BMCs employ these strategies while executing their roles. Conducting general assembly and BMC meetings make it very friendly and public enough for all fishers to own these laws as opposed to when the laws are just planted on them without their contributions and input. A combination of both avenues for byelaw formulation as exercised by the BMCs gives the best approach as some byelaws are regarded by fishers to be unfriendly thus calling for BMC meetings where byelaws are made solely by the BMC executive members with out involving fishers. This is aimed at avoiding conflicts that would otherwise result during the process of formulation. Among the byelaws, some are specially made to strengthen and enforce the implementation of the existing national laws and regulations while others are made to bridge gaps that where left by the national ones.

# 4.4.3 The enforcement of byelaws;

The study revealed that BMCs enforce the formulated byelaws and play a very important part in the process of enforcement through committing financial resources needed to facilitate the enforcement, organizing patrols, and physically participating in the enforcement. Most respondent [76%] said that BMCs have been successful to a small extent. A few respondents [24%] acknowledged a bigger success for BMCs though they said that much is still desired.

Further, it was also revealed that enforcement of bylaws is done through several ways. Respondents [85%] gave conducting regular continuous sensitization meetings, 98% gave conducting patrols especially on water and at landings, 74% gave issuing warnings to culprits, and 95% gave pinning byelaws in public places. A BMC respondent said *"we prefer employing these avenues because they are very effective, affordable, and they complement each other as they are implemented simultaneously*". Other respondents said that these avenues are the ones given to them by the fisheries staff to use so they have to follow suit.

The study revealed that BMCs formulate byelaws and are at the fore front of enforcing them, together with the fishing communities. MAAIF [2003] put it that the enforcement should be in collaboration with the central and or local

governments safety guidelines for fishing operations and Fish Quality Assurance, Sanitary, conduct operations in the beach and neighborhood fishing grounds in collaboration with fisheries staff and other government agencies, among others. The findings established that this doesn't happen as MAAIF stated and it could be one of the reasons why BMCs have not been very successful in byelaw enforcement compared to other areas. While as BMCs carry out enforcement of the set laws, in most cases these are not done in accordance with what MAAIF had suggested. Observations are that while as BMCs have been able to formulate the said byelaws, total compliance still remains a challenge despite of the seemingly remarkable degree of adherence by some fishers.

According to Ostrom, enforcement was to achieve a high rate of compliance and implementation of fisheries regulations since fishers respond mostly through force. This enforcement in turn translates into protecting the fisheries resources, streamlining the fishing activities in their area, achieving sanitation and hygiene on beaches so as to protect people's health, improving fishers' incomes through use of recommended fishing gears, and making fisher laggards compliant by use of force and have a positive ecological impact. In comparison, all the interviewed categories basically have more less similar reasons for the enforcement of byelaws. This is likely to be so because of the awareness created by the BMCs among their fishers.

It should be observed that setting policies or objectives for each fishery resource management must be done very carefully. These must take into account as far as possible, the often conflicting biological, economic and social objectives of the various stakeholders who will be affected by the management of the resource and the overriding objectives of national planning and policy. For example, maximizing economic returns from a fishery may be incompatible with maximizing employment opportunities. A compromise may be required in order to achieve maximum compliance and cooperation from all stakeholders.

Effective resource management seems to lie in community participation in a form of co-management between the government and the local resource users. Traditionally, fisheries have not been owned just as land has been owned. Instead fisheries have been held in trust by government for the benefit of every one. However, the study findings indicate a contradiction that if management is left to the fishers themselves, fishers will go on fishing until the contents of the net are worthless than the cost of putting the nets in the lake.

Therefore, fishers can control fishing activities in their areas if the management is left into their hands but support given to them. It was noted that there is need to equip the BMCs with more skills and knowledge through training to ensure their total accomplishment of their designated roles and responsibilities in the management and development of the fishery in Uganda. Also of paramount importance is the facilitation which has been seen lacking as there is no any funding from government or elsewhere. The above factors require urgent attention if the fishery is to be totally protected and conserved and therefore developed by the BMCs.

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#### 4.4.3.1 How BMCs ensure Enforcement of set byelaws;

'To ensure enforcement of these byelaws and their continuous compliance, we the BMC put sanctions in place to guard against violating these set rules' a BMC member quotes. The sanctions found to be in place included; compensations for damaged fishing gears either by buying a similar gear or paying a fine based on the magnitude of the damage and or as may be seen appropriate, suspension from fishing activities for a given period of time depending on the magnitude of the offence, referring cases to higher authorities such as police especially if the case is above the mandated jurisdiction of BMCs' arbitration was in practice, and buying fish from on water by fish mongers was punishable by paying a fine not exceeding 20,000/=.

The study established that BMCs enforce byelaws whenever there is an escalating level of byelaw abuse by fishers and it is done through routine BMC and inter-BMC patrols. All BMC respondents said that enforcement was to achieve a high rate of compliance and implementation of fisheries regulations. 8 of them said that enforcement in turn translates into protecting the fisheries resources, 9 mentioned streamlining the fishing activities in their area, 8 mentioned achieving sanitation and hygiene on beaches so as to protect people's health, 5 mentioned improving fishers' incomes through use of recommended fishing gears, and 9 gave making fisher laggards [non-innovation adopters] compliant by use of force since it the only language they understand as their reasons for enforcement.

On the other hand, most of the respondents from the BMU category [121] said enforcement of byelaws especially those on fishing was purposed to streamline the fishing activities in their area, 132 gave protecting fish from depletion as their reason, and 12 attributed the reason to blocking fishers from exploiting the fisheries resources. See table below for the summary of reasons.

		[n=137]
Reasons	No. of respondents	Percent.
Protecting the fisheries resources	132	96
Streamlining fishing activities	136	99
Blocking fishers from exploiting resources	12	9
Improving fishers' incomes	35	25
Improving hygiene and sanitation	128	93
Making fisher laggards compliant	85	62

Table 15: Summary of the BMU reasons for enforcing byelaws;

The total percentage and frequencies exceed the real ones due to multiple responses from the respondents.

From the table it can be noted that majority of the fishers understand the purpose for enforcing set laws. To ensure validity of these byelaws and their continuous effectiveness, BMCs put sanctions in place to guard against violating them. However, according to Jentoft [1989], enforcement improves greatly if the fishers are actively involved in setting rules through peer group pressure and also points out quasivoluntary compliance as one of the important features of enduring common resource regimes. Jentoft's view is in line with the way BMCs enforce byelaws. They do it through routine inter-BMC patrols and or in partnership with the local fishing communities, and Monitoring, Control and Surveillance teams. This approach seems to have resulted into the achieved extent. BMCs seem to have borrowed a leaf from Ostrom's view that; external enforcers can not be there all the time nor would they be able to travel to remote villages all the time and it explains why the appropriators of the resource have created their own internal enforcement to deter those who are tempted to break the set rules.

The study seems to suggest that over fishing happens mainly because the open access the fishery has been subjected to. Under open access, fishermen cannot stop other fishermen from catching fish that they would otherwise leave in the lake since fishers only have rights to the fish they catch. Long ago, there were traditional leaders called Gabungas who used to manage fisheries resources based on cultural beliefs such as; preventing women from fishing, preventing some zones from being fished in, not fishing during certain months of the year, and fishing not exceeding a certain amount of fish, among other beliefs. These naturally controlled fishing activities and hence in the process, preserved and conserved fish stocks unlike the present day to-day. Open fisheries result in fishermen catching more fish than they would if they owned the resource themselves. Based on the above, it concluded that resources that are not owned locally are often overused and abused by their users and this partly explains why BMCs were put in place to oversee the exploitation of fisheries. There are other factors that may explain why Lake Victoria fishery is depleting tremendously and these include; the population explosion coupled with massive unemployment that forces even the educated to fish as a substitute source of incomes, and the poor performing agricultural economy due to the degenerated soils which forces those involved in it to look for alternative survival strategies of which the easiest is fishing. However, all these factors come about due to the open access system that makes the fishery an easy target for those that fail from elsewhere.

Assessing the implications of such policy options requires adequate knowledge not only of the technical aspects of the sector but also of its actors. It is important, in particular, to know what impact and policies addressing the industrial sub-sector are likely to have on the survival and progress of small-scale fishing households. Also, since administrative regulation of entry into the fishery activity is not always feasible for countries with limited control over individual economic activities, devising means to influence the sector require a good knowledge of its workings.

The population policy perspective suggests similar concerns as programmes need to be adapted to the socio-economic context of target populations and take into account the role of demographic patterns in long-term family strategies. Likewise, population policies aiming to balance human population dynamics and demographic trends with aquatic resources and environment should adequately take into account the special natural, economic, social and cultural context of fishing communities. It should be noted in this respect that fishing communities sometimes are composed of
members of specific ethnic groups, warranting *a fortiori* specially designed programmes.

The overall approach should be to integrate population, health and welfare programmes with fisheries development and management actions, in order to enhance the effectiveness of policies, improve standards of living of fishing communities and ensure a sustainable, economically beneficial and environmentally sound exploitation of the fisheries sector. In this perspective, population policy implementation in fishing countries would benefit from specific efforts aimed at making related programmes more responsive to the needs of the key population.

# 4.5 Arbitration of fisheries conflicts by BMCs;

Respondents were asked whether BMCs arbitrate fisheries conflicts. Special interest was taken to ascertain whether BMCs actually carryout this role. It was revealed by 66.7% of the respondents that BMCs to a great extent successfully mediate fisheries conflicts and disputes within and around neighboring areas. A small percentage of 33.3% including a fisherman, said "BMCs use their offices for financial gains from the effected parties instead of exercising free and fair mediations". Another fisher was quoted saying "I caught my friend cutting my nets and i reported him to the BMC but instead of being compensated for the damages, he bribed the BMC with 20,000/= and he was set free".

Conflicts exist in all walks of life including the fisheries industry and it is the responsibility of the key stakeholders to take care of them. It was established that several conflicts confront fishing communities and are mostly fisher- fisher related but it is also important to note that there could be others such as; fisher- BMCs, and fisher- fisheries staffs. Either conflict deserves arbitration as minimizing social conflicts leads to maximizing social benefits just as pointed out by Gregory [2001].

The study revealed that BMCs greatly and successfully arbitrate fisheries conflicts by bring conflicting parties are brought together to harmonize their relationships which in turn minimizes social conflicts and improves social cohesion among fishing communities. The performance of BMCs in this regard conforms to the fact that these committees are obliged to preside over matters of arbitration nature so as to create a harmonious working environment for all fishers hence protecting vulnerable fishers and increasing coordinated chances for access to fisheries resources by all. Also as Palfreman [1994] pointed out, fisheries resources are common property and that they face very stiff competitive exploitation for individual gains thus causing frequent conflicts amongst their users that must be managed and resolved by organized structures and in this case it is the BMCs pursuing their responsibility.

The study further revealed that in the course of arbitration, BMCs play the part of; registering cases, the nature of conflicts or complaints, referring cases to police where need arises, presiding over and moderating court sessions, scheduling and organizing court sessions, summoning and giving notices to the defendants, keep records related to conflicts and court rulings, decide suitable punishments and penalties for the guilty and ensuring that the guilty serve the punishment and or penalty.

BMCs are well aware that conflicts curtail fishing activities, fishers' working relationships and fishing returns through court fines and their other related effects, that is a fisheries management responsibility bestowed to them by the DFR and therefore they are under obligation to performing it since they sacrificed themselves to serve their communities. Such understandings seem to be very health for the fisheries sector since it gives a challenge to all resource stakeholders. The study indicated that BMC members appreciate the fact that conflicts greatly affect fishing activities through;

- Causing poor fishing relationships amongst fishers such as blocking smooth fishing,
- Can cause fishers' migration to other areas, and
- Can also cause death to vulnerable fishers and that all these collectively or in part can retard the fishing industry at large just as MAAIF [2003] pointed out.

It was expected that BMCs could preside over matters of that kind so as to create a harmonious working environment for all fishers hence protecting vulnerable fishers and increasing coordinated chances for access to fisheries resources by all.

### 4.5.1 Conflicts and disputes BMCs arbitrate;

It was established that there are several fisheries conflicts and the most common ones are; fishing gear theft, fishing gear destruction, fish theft, using ones' boat with out permission, non- debt payments between fishers and fishers, selling of fish on water by fishermen with out permission from the gear owners, struggling and grumbling for common fishing grounds, and fighting on the lake while fishing. The study further found out that BMCs use two avenues for arbitrating fisheries conflicts.

All respondents [100%] said that BMCs have courts either housed under trees shades or in buildings from where they resolve issues and the second avenue was referring the case to other responsible agencies. According to the findings, most BMCs prefer using these avenues because they believe these avenues lead to peaceful conflict resolution, fishers in attendance learn lessons that help them to avoid similar acts, and that these avenues act as pathways for preparing future leaders since any one is allowed to attend and give opinion and witness.

From the study findings, fishing gear theft and destruction form the core of the conflicts that are usually managed by BMCs in fishing communities. Fishers set their nets in the evening and go home to sleep which gives chance to pirates to steal them. At times, theft is within fishing units by crew members or it is by other beach members. Nets destruction and entanglement also takes place especially, when nets are set on each other in a common fishing ground given the fact that these grounds are usable by anybody.

Using ones' boat with out permission is yet another source of conflicts. Fishers who do not own boats usually use boats without permission from their owners thus causing accusations. Such fishers do not want to meet charges for boat hire and therefore avoid this by escaping with boats when the owners are not around especially in the night. The cause for this act is likely to be that fishers are still poor and yet boats are very expensive to be acquired. It was observed that government has not put in place any provisions for securing fishing gears for fishers either on loan or grant bases. Under the BMC management arrangement, there is a provision for secretary for defense and the bearer of this office has the responsibility of ensuring that fishers' boats are very secure though at times this does not work out.

The above is further aggravated by the issue of non-debt payments amongst fishers. Fishers borrow money from their follow fishers and also give fishing equipment on credit but payment is usually through some serious interventions by the BMCs. Most fishing communities are very poor and this is worsened by the fact that fish is very scarce thus making it very hard for fisher borrowers to pay back. This situation as revealed by the study translates into the act of selling of fish on water by crew members while on water with out permission from the gear owners. The cause for this practice seems to be the prevailing high degree of poverty among fishers coupled with high number of dependence for each head of households.

The above also seems to explain the struggling and grumbling for common fishing grounds especially during gear setting. Fishing grounds are zones where fish breed from and this means that they are fish rich and compounded with the fact that these grounds are very few compared to the number of fishers, fishers often fight for these areas thus causing situations which warrant immediate interventions. Fishers at times develop some misunderstandings while at sea leading to fighting on the lake while fishing which presents serious dangers to life and therefore the need to take great hid. On a small scale, use of illegal fishing gears also presents conflicts. This is especially on beaches where there fishers that use illegal gears and those that do not. The figure below indicates the magnitude of conflicts that are arbitrated by the BMCs in their areas of jurisdiction.

# **4.5.2** How BMCs minimize fisheries conflicts;

Minimizing conflicts was an area the study sought to investigate. This resulted into a deduction that BMCs employ some measures to minimize fisheries conflicts such as; formulation of byelaws to direct and or redirect activities in areas seen critical and vulnerable. This is a conflict minimizing mechanism that is put in place and implemented by all fisheries stakeholders. This is further supported by putting in place tough sanctions to specific conflicts mostly in fragile areas.

Sanctions also ensure that byelaws are continuously effective and are able to guard against violating the existing legal frameworks. Graduated sanctions for those who violate the existing legal frameworks are put in place. Ostrom [1990] emphasized that in a robust institution, monitoring and sanctioning are undertaken not by external authorities but by the participants themselves. Originally, the DFR assumed monitoring and sanctioning responsibility over fisheries activities however, much of this responsibility has been taken over by the officials of the BMU institutions.

From the study, it was revealed that BMCs employ the following measures for minimizing fisheries conflicts; 99% of the respondents said they formulate byelaws to direct activities in areas seen critical and vulnerable and enforce their adherence and compliance by putting in place sanctions, 78% said they constantly sensitize fishers on the need to have good fishing relationships to avoid the cost implications that are associated with causing conflicts, 85% said they invite community liaison officers from police to educate fishers on the dangers of confliction, means of peaceful conflict avoidance, management and resolution let alone the socioeconomic effects on the side of the offender. The chairman Masese BMC said that "fisheries conflicts if unsolved, can lead to insecure situations in the fishing sector. Therefore, arbitration is aimed at creating an amicable and peaceful resolution and settlement of such conflicts to create a harmonious fishing environment which in return leads to the improvement of fishers' socio-economic welfare".

Referring cases to higher authorities such as police especially if the case is above the mandated jurisdiction of BMCs' arbitration was in practice. The realization by the fishers that there supreme laws that still govern them out side their local sanctions and byelaws adds more sense in them to avoid as much as possible going confliction with others. For cases whose sanctions are not specified, they are decided upon by BMCs or in a meeting of the whole community depending the seriousness and context of the offence. This is complemented by the constant sensitizations of fishers on the need to have good fishing relationships where BMCs invite community liaison officers from police to educate fishers on the dangers of confliction, conflict avoidance, peaceful conflict management and resolution, and the need to have social harmony within fisher communities.

Arbitration requires well thought about avenues if Conflicts are to be resolved adequately and this explains why BMCs use either courts housed under trees shades, or in buildings where they sit to resolve conflicts of fisheries nature. Court sessions are held where the BMC members, the affected parties, opinion leaders, and other interested parties gather to hear and settle the grievances amongst fishing communities. In other incidences, BMC members reconcile aggrieved parties out of court especially when the conflict is not so tempting or serious.

According to them, at times, depending on the gravity and or nature of the conflicts, BMCs refer some of them to police which either arbitrate or prepare statements for judicial courts. As revealed by the study, most BMC members believe these avenues lead to peaceful conflict resolution and management, fishers in attendance especially the would be future culprits learn lessons which makes them avoid similar acts, and that these avenues act as training centre for preparing future leaders since any one is allowed to attend and give his or her opinion and witness. Well as the fishers had this reasoning, it is imperative to understand that their effectiveness entirely depends on the technicalities employed in the process of decision making and taking but most especially it should be intra and inter-community meetings.

However in some situations BMCs fail to perform as expected and end up using their offices for financial gains through soliciting for bribes from the effected parties or to earn cheap popularity instead of exercising free and fair mediations, and favoring their relatives and friends. This is a moral degeneration that swallowed up people of walks of life and given that BMC members are not remunerated and yet they are working in a field that involves handling lots of money, it is very tempting especially to those that do not have their own income generating activities.

# 4.6 The challenges associated with fisheries Management;

The study revealed that BMCs and fishers encounter challenges during the process of playing their roles. It was further found out that BMCs encounter challenges during the processes of implementing their assigned roles and responsibilities while the fishers' challenges emanate from the process of complying with the set standards.

Among the challenges BMCs face during information collection and dissemination are; lack of adequate resources to facilitate them implement all the activities for managing and developing the fishery especially funds which in most cases are not available since there are yet very few gazetted sources of such funds allowable to the BMCs, fishers doubting the confidentiality of BMC officials and therefore not trusting them with their information, informants give wrong and contradicting information and yet delayed that require detailed cross-examination and yet most BMC members lack adequate skills for cross-examining such information, and.

Also, Non-adherence by some fishers was yet a challenge BMCs face. According to the study, this situation is caused by; fishers' lack of adequate funds for securing the recommended fishing gears and the related facilities, being hated by fishers especially those who use illegal fishing gears for telling facts some laws and regulations especially the national ones are seen to be too restrictive and rigid and aimed at denying majority fishers access to fisheries resources and yet it the only means for their survival., and some fishers who try to use the recommended gears work at the expense of the non- adherents who get away unpunished as one fisher was quoted saying; *"using recommended gears we get little fish while those using the prohibited gears catch a lot of fish and they escape un- arrested or punished"*.

Further more, the study established that during formulation and enforcement of byelaws, BMCs face some challenges such as; fishers fail to come to consensuses on some byelaws during the process of formulation, lack of adequate logistical support such as; engines, boats and working allowances for the staff, non- commitment by some BMC members, information concealment on critical issues by some fishers, facing personal attribution from some fishers, lack of adequate security on the side of BMCs during enforcement, implicating fishers who are their [BMC] voters that threaten them with vote of no confidence, poor working relationships between BMCs and the fisheries staff due to conflict of interests, lack of skills and expertise in byelaw formulation and enforcement, and arbitration of fisheries conflicts, fishers' non-attendance in byelaw formulating, and fears among some BMC members of being ostracized in cases involving severe punishment of fishers as one committee member was quoted saying "we are afraid that we or our families would be physically abused and or bewitched by offenders since we all live in the same communities and these make us less effective in our duties".

During arbitration, the study revealed that BMCs face these challenges; the accommodated migratory nature of fishers allows entry and exit for wrong fishers with cases to answer to run to other beaches for hiding thus failing the BMC arbitrations mechanism. According to one committee member; "fishermen with cases run to other places where they are not known and this makes it impossible for us to discipline them", some fishers still despise and disrespect BMC courts thus making culprits failing to adhere to court rulings and their corresponding sanctions, conflict of interests among the BMC members leads to some members to leak information to culprits in addition to protecting and favoring them for either financial gains and or cheap popularity.

However, despite of most fishers being very compliant, they too face some challenges in the process of using the disseminated information. They lack adequate funds for securing the exorbitantly priced recommended fishing facilities and yet they cannot do without fishing. Most fishers carryout small scale fishing and the returns that accrue from it are too small to support their families including procuring the recommended gears. This forces a few fishers to continue using prohibited gears selfishly and this seem to explain the presence of some illegal fishing activities despite of the initiation of the BMCs in Uganda though it is worth note that the rate of use of such gears has greatly reduced comparatively.

Also due to some reasons, fishers are faced with getting multi-contradicting directives/information from the different offices of BMCs and other fisheries authorities mostly due to different interests. This indicates a line of weakness in the management arrangement that requires immediate attention. Fishers are at times victimized and yet they are very innocent. The causes for this phenomenon are partly due to uncoordinated implementation of activities by the partner resource managers

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but at most due to the escalating levels of poverty and high rate of moral decadence in Uganda. Different authorities/persons at times give contradicting information to fishers for financial gains. There is great need to always identify and unify areas of great contention whenever there are critical issues to pass across to fishers.

Related to the above, it is also true that some laws and regulations especially, the national ones tend to be too restrictive and rigid in that they deny majority fishers access to fisheries resources. Until of late, there hasn't been a system in place of vigorously educating fishing communities on the national laws and legislations to ensure full understanding and compliance. The laws are very strict; not easily beatable and therefore small scale fishers are pushed out of the fishing industry conditionally and yet fishing is their only income generating activity they can afford to do. This situation in another way creates a challenge for some fishers who use the recommended gears as they work at the expense of the non- adherents as one fisher was quoted saying.

The major challenge generally faced by the entire fisheries sector and which affects all stakeholders is the dwindling fisheries resources that have gone so low to the extent that fishing is becoming un viable. The dwindling resources are due to poor enforcement methods used by BMCs. The co-management approach has not had much positive impact due the fact that; BMCs are fishers as well as the managers and since they are not remunerated, being fishers outweighs being managers. This means that they continue to abet illegal fishing methods which fetch them higher catches and in return, good incomes. If BMCs had some remunerations of some kind, they would perhaps be more responsive to the co-management approach. Also, co-management approach is a top-down system where fishers are told to form committees even when they are not interested in this type of management style. This is imposing a new management style of which fishers were not initially involved in its design. This imposition appears to have had a great negative impact on the fishery as the managers feels their role is secondary to that of the approach designers and as such, they do not put in the required effort to control the mismanagement of the resource. However, management of any kind of resource requires a bottom-up approach for full adoptability.

As a response to dwindling stocks, restocking and cage fish farming would be better strategies for rejuvenating the continuously declining fisheries sector. Also, fish farming would be implemented at higher levels to complement the capture fishery which is seemingly running out of supplies.

# 4.6.1 How BMCs address the challenges;

Natural resource management is very challenging especially in situations involving enforcement measures of any kind. Handling such challenges has to be through several measures that have been put in place and also as a collective responsibility by all management partners for effectiveness. However, despite of this, BMCs have put in place mechanisms of addressing these challenges. The study revealed that some challenges of information collection go unsolved. The approaches BMCs use to address these challenges include; cross-examining the information given to unify the wrong and contradictory information. BMCs make clarifications whenever there is contradicting information and every member is tasked to do this whenever there are misconceptions among fishing communities. Working in partnership and in coordination with all fisheries stakeholders to have unified information disseminated to the fishers is an aspect BMCs handle to minimize the problem of disseminating contradicting information to fishers by the different fisheries management authorities. This has reasonably addressed it though there is need to create a system whereby any interested persons can access information any time for clarifications. Education and publicity secretaries on BMCs continuously search for information so as to enrich BMCs' knowledge banks.

Using persuasive approaches during information collection towards sources suspected to have leading information, and the secretaries for information. Sensitizing fishing communities on the need to respect all fishing regulations regardless of their presumed impact on their fishing activities is a way of addressing the problem of the negative attitude fishers have had over fishing regulations. Fishers are re-assured about the likely benefits especially in the long-run if they are to respect and work according to the recommended procedures.

Conducting continuous sensitizations to fishing communities on the need to respect all fisheries regulations regardless of their presumed impact on fishing activities and re-assuring them on the likely benefits in the long-run which addresses fishers' noncompliance. Instituting punitive measures was equally a remedy BMCs used to address non-compliance among fishers. My observation is that this has not had great impact given that criminality is still in existence and it is not sustainable at all. However, punitive measures are accompanied with constant remainders on the likely implications for revoking any set measures, and hanging notices containing information in public places where everybody can access it were also done.

Lack of funds to meet operational costs was addressed by getting collections from landing-user fees and fishers, in addition to the 25% remittance from sub-counties from the all fisheries revenue generated from within. At time the BMC members contribute funds from their own savings to enable them execute their duties.

Furthermore, it was noted from the study that to address challenges faced by fishers, BMCs work in partnership and in coordination with all fisheries stakeholders to have make clarifications and unify the information disseminated to the fishers to minimize the problem of disseminating contradicting information to fishers by the different fisheries management authorities. Lastly, they also encourage and pave ways for fishers to form groups so as to raise money and or secure loans for securing the recommended fishing gears and facilities to address the problem of lack of money by fishers

However, the study established that BMCs do not work in isolation but work hand in hand with other fisheries related agencies – call them BMC partners to accomplish their tasks. Working in partnership and in coordination with all fisheries stakeholders and division of labor among the BMC members where every member is assigned specific duties related their posts in the BMC were also a common practice.

It was found out that fisheries staff help BMCs to create community awareness by authenticating the information collected, disseminated and used by fishers, fishers also extend the disseminated information to their fellow fishers who may have not been present at the time of dissemination and not aware yet as well as feeding BMCs with information that they may not be aware yet.

In relation to byelaw formulation, BMCs get help from fisheries staff through giving technical advice in relation to the existing national laws and statutory instruments, and assist during enforcement of laws, fishers suggest, approve and or disapprove drafted byelaws before these laws can be implemented, and LC III council is the bylaw approving body. It was established by the study that during arbitration, fishers offer help BMCs in terms of giving evidences and or witnesses and leading information during court sessions and or investigations. Fisheries staffs give technical advice and also help to enforce court resolutions and opinion leaders also give advice whenever need arises.

Fisheries management requires the co-management approach which is a partnership that harnesses the capacities and interests of the local fishers and community with the government providing enabling legislation, enforcement, conflict resolution, awareness rising, and other assistance. The study revealed that BMCs execute these obligations in partnership with fisheries staff who help to authenticate the BMCs'

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information whenever need arises since some fishers at times do not trust the BMC source, the fishers extend the disseminated information to their fellow fishers, especially those who may have not been present at the time of dissemination and are not aware yet and in terms of funding, BMCs mostly use funds locally generated from landing user fees to meet expenses for dissemination which funds are met by fishers.

In the process of byelaw formulation, fisheries staffs give technical advice in relation to the existing local and national regulations, fishers approve and or disapprove drafted byelaws, and suggest new byelaws, while LCs, the political agencies are by law required to witness the process but also give advice whenever need arises.

During arbitrations, fishers give evidences and leading information in form of witness. Fisheries staffs give technical advice given the fact that BMC members lack adequate skills for arbitration. Opinion leaders also give advice in the event of arbitration. This partnership was found to be very helpful since BMC members as revealed by the study lack adequate prerequisite skills to handle these tasks on their own without outside help.

# 4.6.2 Implications of the Co-management approach;

I sought to establish the implications of the co-management approach for the different stakeholders and actors by breaking down its key concepts into indicators. I found the different indicators revealing in a number of ways. For instance, while sustainable fisheries harvest is one of the strategies for achieving fishers' sustainable economic empowerment, the main goal of co-management, the sustainability indicators, were devoid of any environmental and natural resource management element. This view of sustainability alludes to the underlying tension between economic and environmental goals of the approach. Sustainability was largely defined in relation to economic issues that in fact outnumbered the social ones.

There are tensions between commercial and social interests among the BMCs. There are two dominant attitudes, one overtly paternalistic and another economic. The commercial dimension was frequently echoed in the discourse employed particularly by management. While, in principle, BMCs were working with communities and groups as partners, sharing the agenda and interests, the reality exhibited both in the language and the situation on the ground. Commercial relationships, unlike social ones, are 'commodity relationships', not based on goodwill and common social purpose, but on market demands that may never survive beyond economic vagaries of the time. In my view, subjecting a natural resource to economic goals and principles undermined its capacity to sustain itself beyond the economic challenges of the time, yet commerce and income generation are subsets of social development. In this way, BMCs are undermining the very principles they have initiated and the foundation upon which they have built for the period they have lasted since their inception.

### 4.6.3 The BMC Fisheries Management Suggestions;

The Fisheries Extension Workers suggested training of fishers on information giving and sourcing, conducting wide spread sensitizations on the value of information giving, opening up information banks at district headquarters from which fishers, BMCs and other fisheries stakeholders can easily access or deposit information, and training of BMCs in information collection and sourcing. On the same note, the BMC members suggested provision of facilities such as boats, phones, marine engines, stationary, funds to ease information collection processes, and security for BMCs is paramount especially when collecting information on critical issues.

Other respondents suggested that; the DFR should provide funds to enable communications that are constantly done by the BMCs. They further suggested that fisheries staff should be at the fore front since they are trained and are respected by the fishers, increase channels of communication to include television, newspapers, magazines, newsletters, meetings by the DFR, and private organizations, training fisher folks in communication skills e.g. retrieving and use of information as well as the communication that addresses security problems like signals and intelligence communication by police and BMCs.

Suggestions for future byelaw enforcement included; having police at all designated and gazetted fish landing sites so as to assist in enforcing byelaws whenever need arises. Also, that law enforcement should be made a function of all fisheries stakeholders since fishers' numbers outweigh the number of BMC members. Provisions of adequate facilities to BMCs to enable them handle enforcement duties and introducing incentives for fishers who excel in adhering to set byelaws as motivations and luring the hard-to-change fishers as well. Lastly, suggestions for future arbitration of fisheries conflicts according to the study included; training of BMC members in skills for arbitration and minimizing of conflicts, construction of court rooms for arbitrations, BMC members should be remunerated so as to motivate and make them corrupt free.

#### **CHAPTER FIVE: SUMMARY, CONCLUSIONS AND**

#### **RECOMMENDATIONS:**

#### **5.1** Introduction;

This chapter presents the summary of the major findings of the study. Conclusions are also drawn from the study findings and presented. At a later stage it unleashes the recommendations aimed at future effective management and development of the fisheries sector in Uganda.

#### 5.1 Summary;

The East African Community partner states embraced fisheries co-management approach as a way of broadening participation in the management of the fisheries resources. Co-management involves sharing of roles and responsibilities of resource management between government, resource users, civil society institutions and private sector stakeholders. Beach Management Units are institutions at the beach level through which fishing communities co-manage the fisheries through planning and managing fishing activities within their local areas and participation of higherlevel co-management structures that are involved in fisheries management.

A primary advantage of co-management is that it allows the knowledge & understanding of all stakeholders to be reflected in decision-making giving rise to better strategies that are easy to enforce. Fishers have a greater and more immediate knowledge of their local environment and the fishing practices than the administrators at higher levels of government. This allows them to respond faster to local signs of stress and damaging fishing activities. Seeking and incorporating their

views on the design and implementation of management interventions boosts the legitimacy of agreed regulations, especially the national ones. Community based fisheries collaborative management was necessary because it allows the knowledge and views of all stakeholders to be incorporated in the decision-making process and on the other hand, it gives rise to better policy and plans whose adherence level by fishers is high, as opposed to the top-down management used by the partner states earlier. This increases willingness of many fishers to adhere to interventions and to assist in ensuring that others do likewise through monitoring, control and surveillance. At higher levels of co-management structures, other stakeholders like the local government, civil society institutions and fish processors can improve collective outcomes by contributing to the decision-making processes.

Co-management approach started on Lake Victoria with the establishment of 743 BMCs in the three partner states between 1998 and 2000. However, these relied mainly on the interests and partnership of the fishers and the local communities as generally, there were no enabling policies and a legal framework for their operations. Moreover by underestimating, the work needed to establish co-management units such as BMUs on a solid footing, too many BMUs were formed hurriedly. As a result a large number of them collapsed or ceased to function bringing the current number down. The Lake Victoria Fisheries Organization has set up a process of harmonizing the guidelines on establishment and operation of the BMCs on Lake Victoria. These provide for the BMUs elected communities with defined quotas of roles for different stakeholders. These guidelines assign roles for the BMU, fisheries department, local government and civil society organizations. However, BMCs face multiple challenges such as; lack of diversification of their investment into alternative livelihoods, poor saving culture among the fishes, frequent fisher migration and conflict of interests between the exploitation & management roles. These make the task of training within BMU and their networks substantial. Suggested support for BMCs include; provision of logistics, formation of BMU associations and networks, capacity building in organizational, financial management, conflict resolution and decision-making skills, involvement in fisheries management measures such as; participation in licensing of fishers and registration of crafts, encouragement to form savings and credit schemes. Additional effort will be required to ensure that adequate support is given for the co-management structures at the village, sub-county, district, national and regional levels.

#### **5.2** Conclusion:

There are institutions at both national and local levels for the development and management of the fisheries resources. The roles and functions of different players are generally well defined and are increasingly becoming known to each stakeholder. There are adequately defined institutional processes for the development and management of the fisheries resources only that a lot is required to be put in place for effectiveness among of which is inadequate infrastructure, human resources capacity, and limited financial allocation from government and local revenue collections for implementing activities of the sector are. There is therefore need to improve both human and infrastructure capacity and provide for funds allocations to the sector if the designed purpose is to be realized. It is evident from the study that women are limited in fishing activities especially in terms of participation in the management and development of the fishery in their areas and this is due to both social and biological construed roles and responsibilities which bare them from being greatly involved in fisheries activities. Most fishers are uneducated; especially the crews because fishing skills are just acquired through practicing not going to school. Most fishers are well informed of whatever takes place at their beach due the high level of awareness rising done by the BMCs in their areas of jurisdiction.

There is a growing realization amongst communities that they must play an active role in the resource management and development through designing, planning, and implementing all activities. There are important developments in Uganda's fisheries administration styles that provide fishing communities with greater opportunities for participating in the management and development of their resources. What is now very crucial is strengthening these institutions' capacity so as to fully manage and develop their resources.

BMCs qualify in a number of ways as key agents for co –management under the prconditions identified by Becker and Ostrom [1995]. The institution is involved in resource management as a way of supplementing the efforts of DFR. This may be attributed to the long experience they have had in the fishing industry. They fully participate in the collection, dissemination and enforce information usage in their areas of jurisdiction, let alone formulating bylaws and enforcing them together with national ones, presiding fisheries conflicts and resolving them, and handling most fisheries related conflicts. However what was been observed is the institution lacks clear legal rights and many occasions, community members challenge their authority and consequently they fear to act in some situations.

# 5.3 Recommendations:

Given the above discussed scenarios, concerns, threats and opportunities for the management of the fishery, it is imperative to find out what could be done or what are the best options for creating interventions that would result in lasting impacts for sustainable management of the fisheries in Uganda. To improve the chances of success of the Co- management strategy, government and the fishing communities will have to address the strategy's weak areas and reduce the threats to minimize their impacts so as to exploit the untapped opportunities that lie therein. Thus recommendations are here by made in the following areas;

There is need to package policies, formulating and enforcing byelaws and regulations, information systems, regulate fisheries activities coordination, well formulated approaches to fisheries conflicts arbitration and other management options that address these issues at local, national and international level and provision of scientific information and data to guide management decisions. For example, it would be desirable to establish and strengthen local, national and regional institutions for management and conducting research on fisheries socio-economics and the ecosystem of Uganda's fishery. It is necessary to institutionalize the concept of co-management in the fisheries sector

T is not easy to change the mind-set of people that have been under different but similar local fisheries management institutions. It should be recalled that comanagement has evolved through several management institutional arrangements. So BMCs have been made to act like these former arrangements and at the same time, communities are viewing them as any institutions exercising power over them in the same light as the former fisheries management institutions. In this case, BMCs are ending up being alienated from the community they are supposed to be representing. This points out the need for a clear and unambiguous understanding of the roles and functions of BMCs by all parties, which will help to enhance their status and ability to represent consensus within the communities. This can be achieved through massive fisher education, sensitizations delivered by the DFR.

There is need to change the fisheries management style. Integrate BMC management approach with Communal Area Management Program [CAMP] so as to strengthen the current fisheries management under the BMC-CAMP management arrangement. One of the important aspects of this program is the principle of recognizing the security of tenure for the resource users. Under the CAMP approach, fishers pay an agreed membership contribution to their wards and they manage the funds on their own. Part of this money is used for paying subsistence allowances for the committee members and funding other management and administrative costs. As a result, the fishers appreciate that it is their program and also that they have a financial responsibility for its administration.

Introducing CAMP would presumably, motivate fishers to invest in the resource which should lead to improved resource management. Thus, the inhabitants are supposed to receive proprietorship over resources in defined exclusive fishing zones. This management approach can empower fishing communities to take over regulatory measures necessary for its sustainable utilization of the resources. The fishing community will have to determine who may use the resource, which one is excluded from the resource and how the resource should be used. Fisheries managers should not be trapped under the *lifeboat dilemma [see Jentoft, 1993:24]* because the current state of the fishery, the level of BMC performance, and the need for the long-term sustainability demand that some hard choices are made sooner than later. They have to grapple with such important issues as who is going to get the right to fish and or to be excluded.

☞ Intensification of extension and improvement of communication is yet another area that deserves critical considerations. There is a lot of work that needs to done in explaining the necessity, importance and justification of some of the important aspects of the strategy, collective management responsibility among others. Intensification of extension is important in order to get the support of fishers not through coercion, but through enlightenment on the reasoning behind the regulations and procedures. This way, it can be ensured that they will pass on the massages to future generations and so ensure sustainability of the strategy. Extension and communication can nurture a self-help spirit of BMC members; ensure success and sustainability of the approach and other co-management institutions. Without people willing to serve on such a basis, the co-management arrangement will not work.

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

Also, to enhance access to information; there is need to increase channels of communication to include; radios, television, phones, newspapers, magazines, newsletters, posters, community meetings to be organized and presided over by the DFR, fisheries staff, and private organizations, training fisher folks in communication skills such as; retrieving and use of information as well as the communication that address security problems e.g. signals and intelligence communication by police and BMCs, and establishing a nation wide mechanism for fisher communities to access and utilize information regarding national and local management and development.

The basic problem facing the rural fishing communities and indeed that of Uganda stems from the high population growth rates which in turn cause an

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imbalance between the fishing population and the fisheries resources potential. Fish resources are not enough to satisfy the socio-economic needs of the local population and this has led to fishers to overstrain Uganda's fishery by use of destructive fishing gears and methods. The best avenues for meeting fishers' needs seem to lie in other sectors, especially those based on secondary production and marketing of products as well as in the service industry. There is need to have a progressively greater proportion of the population to be de-linked by the BMCs from fishing activities so as to relieve them of the ever escalating management burdens. Creating employment opportunities outside the fishery would serve three purposes; absorbing surplus labor, promoting vertical mobility, and providing a supplementary/ alternative source of living and hence security against uncertainty arising from either markets or resource fluctuations.

There is need to for revision of the Fish Act. In order to legalize fully the role and function of individuals and the BMCs created for user participation, the Fish Act needs to be revised. The particular areas that need changes and therefore warranting revision include; transfer of property rights over specific resources to communities, permission to allow ploughing back part of the proceeds from fisheries generated revenue to BMC institutions to cater for their management and administrative costs and provide for the full transfer of management responsibility to BMU institutions. Until the revised Fish Act is put in place, the BMC institution will continue to lack legal recognition from resource users to carry out it as management responsibilities and functions as it was envisioned during the formulation. Further, for effectiveness in the management of the fisheries resources, the BMC should be given enough support from government and all related development partners and agencies. The needed support may include; developing a training manual for capacity building in organizational, financial management, conflict resolution, management and decision making skills, providing information and skills in alternative livelihood that will ensure that BMCs and fishers diversify their investments, giving priority to BMCs in re venue collection by the local authorities, among others. The benefits accruing from the fishery such as empowerment, food and incomes require appropriate management strategies. This is so because government doesn't have adequate human and financial resources to manage the fisheries resources and yet fishing communities live very closely to the fishery resources and have vast experiences on the behavior of the fishery resources hence the need for supporting.

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# APPENDICES

# The Study Budget

Item	Quantity	Unit Cost	Amount							
Stationary										
Photocopying papers	5 reams	8,000/=	40,000/=							
Stapling machine	1	20,000/=	20,000/=							
Envelopes	12 (1dozen)	500/=	6,000/=							
Markers	12 (1dozen)	500/=	6,000/=							
File	1	10,000/=	10,000/=							
Pens	12 (1 dozen)	200/=	2,400/=							
Pencils	2	100/=	200/=							
Note books	10	1000/=	10,000/=							
Sub-total	98,600/=									
Travel and podium										
Transport			450,000/=							
Accommodation	60 days	25,000/=	1,500,000/=							
Feeding	60 days	5,000/=	300,000/=							
Sub-total	2,250,000/=									
Secretarial services										
Binding report	5	10,000/=	50,000/=							
Sub-total	50,000/=									
GRAND TOTAL	2,398,600/=									
Two million three hundre	ed ninety eight thous	and and six hundr	ed shillings only							

Exchange rate: 1 US dollar = 1800|= **1,332.6 <u># US dollar</u>** 

# **APPENDIX II**

# The field Work plan for the Study

	MONTH											
	MA	Y			JU	NE			JU	LY		
ACTIVITIES	Weeks			Weeks			Weeks					
	i	ii	Iii	iv	i	ii	iii	iv	i	ii	Iii	Ιυ
Construction of												
Research instruments.												
Pre-testing instruments.												
Pre-visit of the study area												
Delivery of Introduction												
letters												
Travel to the study area.												
Meeting the												
Local authorities.												
Data collection.												
Data analysis.												
Report writing.												
Report binding.												
Report submission.												
#### **APPENDIX III: QUESTIONNAIRE**

# MAKERERE UNIVERSITY FACULTY OF SOCIAL SCIENCES DEPARTMENT OF POLITICAL SCIENCE AND PUBLIC ADMINISTRATION

#### The Interview Guide for the BMC Category

#### Introduction;

I am a researcher from Makerere University collecting data for the FISH project and for my thesis. The required data is about the extent BMCs have played their roles and how this has impacted on the development and management of fisheries resources in Uganda. Further, the data will include an analysis of how these roles can in turn impact on the management and development of the on-going fish bait culture in Uganda. You are therefore kindly requested to give honest and genuine information as the information might be used to guide, manage and develop the fisheries resources in your area and Uganda as a whole and will be treated with maximum confidentiality. Please attempt these simple questions.

#### [1] What is your?

(a) Name (optional)
(b) Age
(c) Sex
(d) Religion
(e) Marital status
(f) Highest level of education
[2] What is the name of your?
(a) Beach

(b) BMC	
(c) Sub count	у
(d) District	
[3] What is your	designation on the BMC?
[4] How many be	eaches are in your area of jurisdiction?
(Name them)	
[5] For how long	have you been operating in this area?
[6] Do you usual	ly collect information about any aspect in your fishing community?
(a) If not, how	v do you access the required information?
(b) If yes, wha (c) What do y	at information do you collect for and from your fishing community?. ou normally aim at?
(d) What aver	nues do you use?
(e) How do yo	ou employ these avenues?
(f) Why do yo	u prefer these avenues?
(g) Have you	always been successful?
(h) What are	your sources of information?
(i) How do yo	u ensure that your fishing community gives you the information?
(j) Do you get	any help in the process of collecting information?
(k) If not, ho	w do you go about it?
(l) If yes, what	at help and from whom?
(m) In respec collecting info area	t to your experience, do you think you are capable of successfully ormation for the management & development of the fishery in your
(n) If yes, why	y do you think so?

	(o) What are your suggestions for future information collection?
[7]	Do you usually disseminate the information you collect?
	(a) If no, what do you do with the collected information?
	(b) If yes, Why?
	(c) How receptive have your people been to this information?
	(d) What avenues do you use to disseminate it?
	(e) Have you always been very successful in using these avenues?
(	(f) What particular people are intended for this information?
(	(g) Do the fishers use the information you disseminate in the exploitation and utilization of fisheries resources in your area?
(	(h) Yes or No, why?
(	(i) If yes, what aspects do they use this information on?
(	(j) How do you ensure that your people continuously use the information correctly & effectively?
(	(k) Do you get any help in the process of disseminating information?
(	(l) If yes, what help and from whom?
(	(m) If not, how do you go about it?
	(n) In respect to your experience, do you think you are capable of successfully disseminating information for the management & development of the fishery in your area?
(	(o) If yes, why do you think so?
(	(p) What are your suggestions regarding future information use in your area?
[8] fish	Do you always formulate fisheries byelaws for the management & development of eries resources in your area?
(	(a) If yes, what byelaws are these?
	(b) With what aim do you formulate these byelaws?

(c) When do you make byelaw?
(d) What avenues do you use?
(e) How do you employ these avenues?
(f) Why do you prefer these avenues?
(g) What part do you play in the process of formulating these byelaws?
(h) Have you always been successful in formulating these byelaws?
(i) Do you get any help in the process of formulating byelaws?
(j) If yes, what help and from whom?
(k) If not, how do you go about it?
(l) In respect to your experience, do you think you are capable of successfully
formulating byelaws for the management & development of the fishery in your
area?
(m) If yes, why do you think so?
(n) What are your suggestions for future formulation of fisheries byelaws?
[9] Do you always enforce these byelaws in your area?
(a) Yes or No, why?
(a) Yes or No, why? (b) What avenues do you use?
<ul><li>(a) Yes or No, why?</li><li>(b) What avenues do you use?</li><li>(c) How do you employ these avenues?</li></ul>
<ul><li>(a) Yes or No, why?</li><li>(b) What avenues do you use?</li><li>(c) How do you employ these avenues?</li><li>(d) Why do you prefer these avenues?</li></ul>
<ul> <li>(a) Yes or No, why?</li> <li>(b) What avenues do you use?</li> <li>(c) How do you employ these avenues?</li> <li>(d) Why do you prefer these avenues?</li> <li>(e) What part do you play in the process of enforcing these byelaws?</li> </ul>
<ul> <li>(a) Yes or No, why?</li> <li>(b) What avenues do you use?</li> <li>(c) How do you employ these avenues?</li> <li>(d) Why do you prefer these avenues?</li> <li>(e) What part do you play in the process of enforcing these byelaws?</li></ul>
<ul> <li>(a) Yes or No, why?</li> <li>(b) What avenues do you use?</li> <li>(c) How do you employ these avenues?</li> <li>(d) Why do you prefer these avenues?</li> <li>(e) What part do you play in the process of enforcing these byelaws?</li> <li>(f) Have you always been successful in enforcing these byelaws?</li> <li>(g) How do you ensure that these byelaws are continuously adhered to by your fishing community?</li> </ul>
<ul> <li>(a) Yes or No, why?</li> <li>(b) What avenues do you use?</li> <li>(c) How do you employ these avenues?</li> <li>(d) Why do you prefer these avenues?</li> <li>(e) What part do you play in the process of enforcing these byelaws?</li> <li>(f) Have you always been successful in enforcing these byelaws?</li> <li>(g) How do you ensure that these byelaws are continuously adhered to by your fishing community?</li> <li>(h) When do you enforce byelaws?</li> </ul>
<ul> <li>(a) Yes or No, why?</li> <li>(b) What avenues do you use?</li> <li>(c) How do you employ these avenues?</li> <li>(d) Why do you prefer these avenues?</li></ul>

(k) If not, how do you go about it ?.....

(l) In respect to your experience, do you think you are capable of successfully enforcing byelaws for the management & development of the fishery in your area?.....

(m) If yes, why do you think so.....

(n) What are your suggestions for future enforcement of byelaws in your area?.....

[10] Do you always arbitrate/mediate fisheries conflicts and disputes in your fishing community?.....

(a) Yes or No, why?.....

(b) If yes, what avenues do you use?.....

(c) Why do you prefer these avenues?.....

(d) How do you employ these avenues?.....

(e) What part do you play in the process of mediating these conflicts & disputes?..

(f) How do you minimize conflicts and disputes amongst your fishers?.....

(g) Mention the conflicts & disputes that you mediate & state reasons why these?

(h) Do you get any help in the process of mediating these conflicts?.....

(i) If yes, what help and from whom?.....

(j) Have you always been successful in these mediations?.....

(k) In respect to your experience, do you think you are capable of successfully mediating fisheries conflicts for the management & development of the fishery in your area?.....

(l) If yes, why do you think so?.....

(m) What are your suggestions for future mediation of fisheries conflicts and disputes with in your area?.....

[11] Are there some challenges or barriers you encounter in the process of managing & developing the fisheries resources in your area?.....

(a) If yes, what are they?
(b) How have you always addressed these challenges?
(c) In respect to your experience, do you think BMCs are capable of successfully addressing these challenges so as to manage & develop fisheries resources in your
(d) If yes, why do you think so?
(e) If no, what are your suggestions?

#### -END-

## Thank you very much for your information and time.

#### APPENDIX IV

# MAKERERE UNIVERSITY FACULTY OF SOCIAL SCIENCES DEPARTMENT OF POLITICAL SCIENCE AND PUBLIC ADMINISTRATION

# The Questionnaire for the Fisheries Extension Workers' category

#### Introduction;

I am a researcher from Makerere University collecting data for the FISH project and for my thesis. The required data is about the extent BMCs have played their roles in the development and management of fisheries resources in Uganda. You are therefore kindly requested to give honest and genuine information as the information might be used to guide, manage and develop the fisheries resources in your area and Uganda as a whole and will be treated with maximum confidentiality. Please attempt these simple questions.

### [1] What is your?

	(a)Name (optional)
	(b) Age
	(c) Sex
	(d) Religion
	(e) Marital status
	(f) Highest level of education
[2]	What is the name of your?
	(a) Beach
	(b) BMC(s)

(c) Sub-County
(d) District
[3] What is your designation?
[4] How many beaches are in your area of jurisdiction? (Name them)
[5] For how long have you been operating in this area?
[6]Does the BMC usually collect information about any aspect in your community?
(a) If not, how do the fisheries stakeholders access the required information?
(b) If yes, what are the aspects?
(c) What avenues does it use to collect it?
(d) How does it employ these avenues?
(e) Has it always been successful?
(f) If yes, what indicators make you think so?
(g) What information does it collect for & from the fishing community?
(h) What are its sources of information?
(i) How does it ensure that the fishers give it the information?
(j) Does it get any help in the process of collecting information?
(k) If not, how does it go about it?
(l) If yes, what help and from whom?
(m) In respect to you experience, do you think BMCs are capable of successfully collecting information for the management & development of the fishery in your area?
(n) If yes, why do you think so?
(o) What are your suggestions for future information collection for the management & development of the fisheries sector?

[7] Does the BMC disseminate the information it collects to the intended beneficiaries?..... (a) If yes, why?..... (b) How receptive are the fishers to this information?..... (c) What avenues does it use to disseminate this information?..... (d) Has it always been successful?..... (e) If yes, what indicators make you think so?..... (f) What particular people are intended for this information?..... (g) Why do you think the BMC targets particularly these people?..... (h) How does it ensure that the fishing community accepts this information?...... (i) Does it get any help in the process of disseminating information?..... (j) If yes, what help and from whom?..... (k) If not, how does it go about it?..... (l) In respect to your experience, do you think the BMC is capable of successfully disseminating information to the fishers?..... (m) If yes, why do you think so?..... (n) If yes, why do you think so?..... (o) What are your suggestions for future information dissemination in your area? [8] Do fishers use the information BMC disseminate in the exploitation & utilization of fisheries resources in your area? ..... (a) If Yes, why? ..... (b) What aspects do your people use this information on? ..... (c) How does the BMC ensure that the fishers continuously use the information correctly and effectively?..... (d) In respect to you experience, do you think fishers are capable of successfully employing the disseminated information for the management and development of the fishery your area?.....

(e)	) If ve	es. wh	v do	vou thi	nk soʻ	)
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(f) What are your suggestions regarding future information use in your area?......

[9] Does the BMC in your area formulate fisheries byelaws for the management and development of fisheries resources?
(a) If yes, what byelaws are these?
<ul><li>(b) With what aim does it formulate these byelaws?</li><li>(c) When does it make byelaws?</li></ul>
(d) What avenues does it use?
(e) How does it employ these avenues?
(f) Has it always been successful in formulating these byelaws?
(g) If yes, what indicators make you think so?
(h) What part do you play in the process of formulating these byelaws?
<ul><li>(i) Does it get any help in the process of formulation?</li><li>(j) If yes, what help and from whom?</li></ul>
(k) In respect to you experience, do you think BMCs are capable of successfully formulating bylaws for the management of the fishery in your area?
(l) If yes, why do you think so?
(m)What are your suggestions for future byelaw formulation for the management & development of the fisheries sector?
[10] Does the BMC enforce the formulated byelaws in your area?
(a) If yes, why does it enforce them?
(b) What avenues does it use?
(c) How does it employ these avenues?
(d) Has it been always successful in enforcing these byelaws?
(e) If yes, what indicators make you think so?

(f) How does it ensure that these byelaws are continuously adhered to by the fishing community?
(g) When does it enforce byelaws?
(h) Does it get any help in the process of enforcing these byelaws?
(i) If yes, what help and from whom?
(j) If not how does it about it?
(k) What part do you play in the process of enforcing these byelaws?
(l) In respect to you experience, do you think BMCs are capable of successfully enforcing bylaws for the management of the fishery in your area?
(m) If yes, why do you think so?
(n) What are your suggestions for future enforcement of byelaws in your area?
[11] Does the BMC mediate fisheries conflicts and disputes amongst the fishers in your area
(a) If yes, with what aim?
(b) If yes, what avenues does it use?
(c) How does it employ these avenues?
(d) Has it always been successful in these mediations?
(e) If yes, what indicators make you think so?
(f) When does it mediate these conflicts and disputes?
(g) How does it minimize conflicts & disputes amongst the fishing community?
(h) Does it get any help in the process of mediating these conflicts?
(i) If yes, what help and from whom?
(j) What part do you play in the process of mediating conflicts & disputes? (k) In respect to you experience, do you think it is capable of successfully mediating conflicts for the management & development of the fishery in your area?

(l) If yes, why do you think so?
(m) What are your suggestions for future mediation of fisheries conflicts &
disputes with in your area?
[11] Are there some challenges or barriers you encounter in the process of managing & developing the fisheries resources in your area?
(a) If yes, what are they
(b) How have they always addressed these challenges?
(c) In respect to your experience, do you think BMCs are capable of successfully managing & developing fisheries resources in your area?
(d) If yes, why do you think so?
(e) If no, what are your suggestions?

#### -END-

## Thank you very much for your information and time.

#### APPENDIX V

## MAKERERE UNIVERSITY FACULTY OF SOCIAL SCIENCES DEPARTMENT OF POLITICAL SCIENCE AND PUBLIC ADMINISTRATION

#### The Focus Group Discussion Guide for the BMU category

#### Introduction;

I am a researcher from Makerere University collecting data for the FISH project and for my thesis. The required data is about the extent BMCs have played their roles in the development and management of fisheries resources in Uganda. You are therefore kindly requested to give honest and genuine information as the information might be used to guide, manage and develop the fisheries resources in your area and Uganda as a whole and will be treated with maximum confidentiality. Please attempt these simple questions.

[1] Biographical data;

- (a) Name
- (b) Age
- (c) Beach
- (d) Sub-County
- (e) District
- (f) Marriage Status
- (g) Level of Education
- (h) What fishing activity do you do?
- (i) For how long have you operated from this beach?

- [2] The BMC structure;
  - (a) Have you ever had about BMCs?
  - (b) Do you have one at your beach?
  - (c) If yes, what is it?

[3] Creation of awareness through information collection;

- (a) Does the BMC usually collect information about any aspect for and from you?
- (b) If not, how do you access the information regarding fisheries?
- (c) If yes, what are the aspects?
- (d) Why does it collect it?
- (e) What avenues does it use to collect it?
- (f) How does it employ these avenues?
- (g) Has it always been successful?
- (h) If yes, what indicators make you think so?
- (i) If yes, how does it normally address them?
- (j) What information does it collect for and from you?
- (k) What are its sources of information?
- (l) Do you give it correct information?
- (m) If yes, why?
- (n) Does it get any help in the process of collecting information?
- (o) If yes, what help and from who?
- (p) If not, how does it go about it?

(q) In respect to your experience, do you think it is capable of successfully collecting information for the management and development of the fishery in your area?

(r) If yes, why do you think so?

# (s)What are your suggestions for future information collection for the management and development of the fisheries sector?

- [4] Creation of awareness through information dissemination;
  - (a) Does BMC disseminate the information collected for and from you?
  - (b) If yes, why?
  - (c) What has been your attitude towards to this information?
  - (d) What avenues does it use to disseminate this information?
  - (e) Why do you think it prefer these avenues?
  - (f) How does it employ these avenues?
  - (g) Has it always been successful?
  - (h) If yes, what indicators make you think so?
  - (i) What information does it disseminate to you?
  - (j) How does it ensure that you accept this information?
  - (k) Does it get any help in the process of disseminating information?
  - (l) If yes, what help and from who?
  - (m) If not, how does it go about it?

(n) In respect to your experience, do you think the BMC is capable of successfully disseminating information for the management and development of the fishery in your area?

- (o) If yes, why do you think so?
- (p) What are your suggestions for future information dissemination in your area?

[5] Creation of awareness through information use;

(a) Do you use the information BMC disseminate in the exploitation and utilization of fisheries resources in your area?

- (b) If yes, why?
- (c) What aspects do you use this information on?
- (d) How do you use this information?
- (e) How does the BMC ensure that you continuously use the information correctly and effectively?
- (f) What are your suggestions regarding future information use in your area?
- [6] Formulation of fisheries byelaws;

(a) Does the BMC in your area formulate byelaws for the management and of development fisheries resources?

- (b) If yes, what byelaws are these?
- (c) When does it make byelaws?
- (d) Has it always been successful in formulating these byelaws?
- (e) If yes, what indicators make you think so?
- (f) What part do you play in the process of formulating these byelaws?
- (g) Does it get any help in the process of formulation?
- (h) If yes, what help and from who?
- (i) What avenues does it use?
- (j) How does it employ these avenues?
- (k) What are your suggestions for future byelaw formulation for the management and development of the fisheries sector?

[7] Enforcement of fisheries byelaws;

- (a) Does the BMC enforce the formulated byelaws in your area?
- (b) If yes, why does it enforce them?
- (c) Has it been always successful in enforcing these byelaws?
- (d) If yes, what indicators make you think so?

- (e) When does it enforce byelaws?
- (f) What avenues does it use?
- (g) How does it employ these avenues?
- (h) How does it ensure that you continuously adhered to these byelaws?
- (i) Does it get any help in the process of enforcing these byelaws?
- (j) If yes, what help and from who?
- (k) If not how does it about it?
- (l) What part do you play in the process of enforcing these byelaws?
- (m) What are your suggestions for future enforcement of byelaws in your area?

[8] Arbitration of fisheries conflicts and disputes;

- (a) Does the BMC always mediate fisheries conflicts & disputes amongst you?
- (b) If yes, with what aim?
- (c) What avenues does it use?
- (d) How does it employ these avenues?
- (e) What part do you play in the process of mediating conflicts and disputes?
- (f) Has it always been successful in these mediations?
- (g) If yes, what indicators make you think so?
- (h) How does it minimize conflicts and disputes amongst you?
- (i) When does it mediate these conflicts and disputes?
- (j) Does it get any help in the process of mediating these conflicts?
- (k) If yes, what help and from who?

(l) In respect to you experience, do you think it is capable of successfully mediating conflicts for the management and development of the fishery in your area?

(m) If yes, why do you think so?

(n) What are your suggestions for future mediation of fisheries conflicts and disputes with in your area?

[11] Are there some challenges or barriers BMCs encounter in the process of managing and developing the fisheries resources in your area?

(a) If yes, what are they?

(b) How have they always addressed these challenges?

(c) In respect to your experience, do you think BMCs are capable of successfully managing and developing fisheries resources in your area given the mentioned challenges?

(d) If yes, why do you think so?

(e) If no, what are your suggestions?

#### -END-

#### Thank you very much for your information and time.

#### **APPENDIX VI**

Date	Sub-categories	Group	Activities	Time
		Ι	Arrivals	9.00am - 9.30am
			Introductions	9.30am – 10.00am
10 <sup>th</sup> June 2006	Crew/Barrias		Discussions	10.00am-1.00pm
			Lunch	1.00pm -2.00pm
		II	Arrivals	9.00am - 9.30am
11 <sup>th</sup> June 2006	Crew/Barrias		Introductions	9.30am – 10.00am
			Discussions	10.00am-1.00pm
			Lunch	1.00pm -2.00pm
			Arrivals	9.00am - 9.30am
12 <sup>th</sup> June 2006	Crew/Barrias	TTT	Introductions	9.30am – 10.00am
			Discussions	10.00am-1.00pm
			Lunch	1.00pm -2.00pm
			Arrivals	9.00am - 9.30am
13 <sup>th</sup> June 2006	Crew/Barrias	IV	Introductions	9.30am – 10.00am
			Discussions	10.00am-1.00pm
			Lunch	1.00pm -2.00pm
		V	Arrivals	9.00am - 9.30am
14 <sup>th</sup> June 2006	Crew/Barrias		Introductions	9.30am – 10.00am
			Discussions	10.00am-1.00pm
			Lunch	1.00pm -2.00pm
		I	Arrivals	9.00am - 9.30am
15 <sup>th</sup> June 2006	Boat owners		Introductions	9.30am – 10.00am
			Discussions	10.00am-1.00pm
			Lunch	1.00pm -2.00pm
		I	Arrivals	9.00am - 9.30am
16 <sup>th</sup> June 2006	Fish processors		Introductions	9.30am – 10.00am
			Discussions	10.00am-1.00pm
			Lunch	1.00pm -2.00pm

## The FGD work plan for the BMU sub-categories;

	Gear makers and sellers	I	Arrivals	9.00am - 9.30am
17 <sup>th</sup> June 2006			Introductions	9.30am – 10.00am
			Discussions	10.00am-1.00pm
			Lunch	1.00pm -2.00pm
oth I			Arrivals	9.00am - 9.30am
18 <sup>th</sup> June 2006	Boat makers and repairers	I	Introductions	9.30am – 10.00am
			Discussions	10.00am-1.00pm
			Lunch	1.00pm -2.00pm
			Arrivals	9.00am - 9.30am
			Introductions	9.30am – 10.00am
			Discussions	10.00am-1.00pm
			Lunch	1.00pm -2.00pm
20 <sup>th</sup> June 2006	Managers	Ι	Arrivals	9.00am - 9.30am
			Introductions	9.30am – 10.00am
			Discussions	10.00am-1.00pm
			Lunch	1.00pm -2.00pm
21 <sup>st</sup> June 2006	Chatterers	Ι	Arrivals	9.00am - 9.30am
			Introductions	9.30am – 10.00am
			Discussions	10.00am-1.00pm
			Lunch	1.00pm -2.00pm
End of the discussions				

#### APPENDIX VII

#### THE OBSERVATION GUIDE;

#### Aspects observed during the study;

- (a) Fish sizes,
- (b) Fishing gear mesh sizes and types,
- (c) General cleanliness at landing site,
- (d) Publicly hanged notes and byelaws,
- (e) Meetings,
- (f) Arbitration sessions,
- (g) The overall length of fishing boats,
- (h) Written letters from other BMCs for coordination of activities,
- (i) Lake patrols,
- (j) Time of landing fish,
- (k) Catches [amount of fish caught],
- (l) Fishing effort per unit, and
- (m) The Cleanliness of fishing vessels and the beach itself.

-END-