

IUCN Eastern Africa Programme

Socio-economics of the Lake Victoria Fisheries

**TRADITIONAL AND CENTRAL MANAGEMENT SYSTEMS OF
THE LAKE VICTORIA FISHERIES IN KENYA**

John P. Owino



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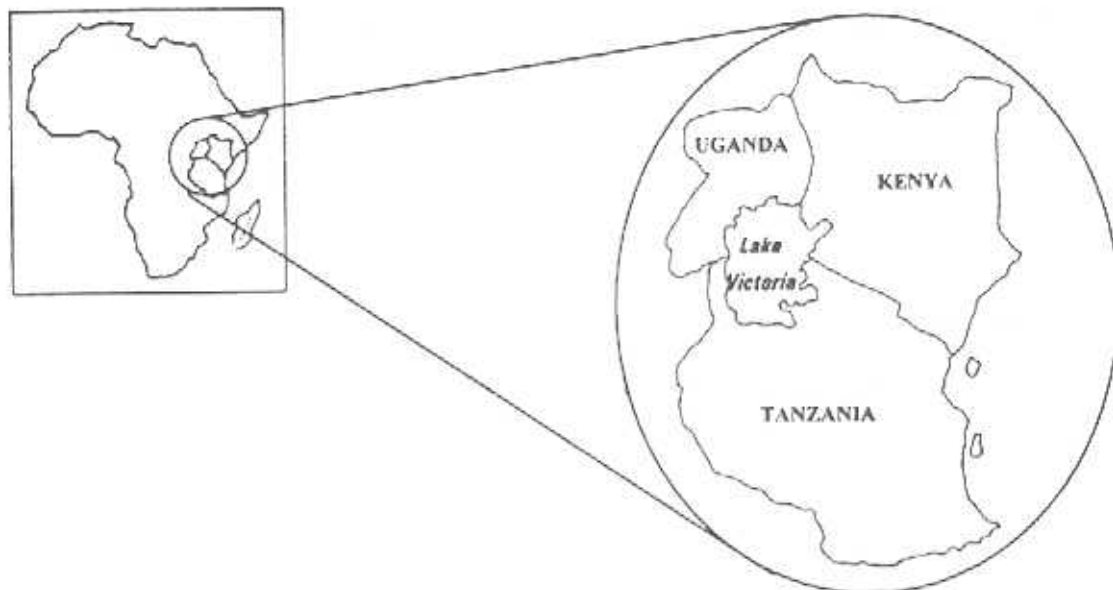
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Socio-economics of the Nile Perch Fishery on Lake Victoria

**TRADITIONAL AND CENTRAL MANAGEMENT SYSTEMS
OF THE LAKE VICTORIA FISHERIES IN KENYA**

John P. Owino¹

¹ Programme Officer
OSIENALA
P.O. Box 4580
Kisumu, KENYA



Lake Victoria is the second biggest lake in the world. With its 69,000 km², the lake has the same size as Ireland. The lake is shared between three countries; Tanzania (which possesses 49%), Uganda (45%) and Kenya (6%) of the lake.

The findings, interpretations and conclusions in this publication are those of the author and do not necessarily reflect those of IUCN or partner organisations in this project.

Newspaper Cuttings: All newspaper cuttings (clips) included in this report are excerpts of Daily Nation articles appearing on various dates.

Cover photo: Reject dried Nile perch at Mwaloni Market, Mwanza. The fish is exported to markets in Zaire and Zambia.

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SUMMARY

During the last decades a dramatic change has occurred in the management of Lake Victoria fisheries. This report discusses some aspects of these changes through looking at traditional and centralized management systems. Most of the information presented in this report was collected from fishing communities around the Kenyan part of Lake Victoria between December 1996 to April 1998.

The traditional management system of the Lake Victoria fisheries goes back to pre-colonial time, and important aspects of this management system last up to the early 1970s. In the traditional system of management, the fishing communities, under the authority of the clan institution, played a central role in the control and management of the fisheries resources. Fisheries resources were not simply a source of livelihood, but a way of life. Sustainable utilization of the fisheries resources was a collective responsibility among the fishing clan members. This system had an in-built relationship between cultural traditions and the resource, giving rise to a well-nurtured regulatory compliance, monitoring and sustained catch. Due to this kind of management system in place, coupled with limited fishing pressure, rudimentary and ineffective harvesting technologies and low fisheries resources were abundant both in terms of species diversity and stock, thus ensuring the well being of the fishing community.

The Kenya Government established Fisheries Department as an institution that took over the responsibility of fishery management from the local community. The department was created to implement the Fisheries Acts, Government policies and regulations, to ensure sustainable fisheries management. The Government played a limited, well-intentioned and fairly benign role in the management of the fisheries from the colonial time up to 1970s. It was particularly with the Nile perch boom in the late 1970s and early 1980s that this role steadily started to change to the negative. The earnings from the Nile perch increased by many times as compared to before the boom. Instead of contributing to manage the rich fisheries in a sustainable manner, the existing regulations were often used to the economic advantage of some law enforcers. This alienated the fishing communities and undermined the traditional local community institutions, which had played a very positive role in the management of the fisheries in the past. At the same time, the performance of the fishermen co-operative societies, which were introduced by the government to assist the fishermen with marketing the fish and to mobilise the revenue earned from the fisheries resources, has left many fishermen frustrated and disillusioned. In response to these situations, the local fishing communities are developing new institutions and organizations to protect their interests.

ACKNOWLEDGEMENTS

I wish to acknowledge Dr. Erik G. Jansen, Technical Adviser to IUCN's project on Socio-economics of the Nile Perch Fishery on Lake Victoria for his professional guidance and comments on all my field reports and this publication. Also acknowledged are Ms. Mine Pabari, Field Officer of the project and Dr. Geoffrey Howard of IUCN for editing the final version of this report. In my own organisation, OSIENALA, Mr. Kinya Munyirwa, Mr. John Charles Vorster, and Mr. James Okullo discussed the findings of my fieldwork and gave me valuable information. The main source of information came from the fishermen and fishmongers interviewed, and they are duly acknowledged.



Traditional fishing boats rested on lake shoreline

INTRODUCTION

This paper discusses community participation and the role of the Kenya Government in the management of Lake Victoria fisheries. The discussion is limited to the harvesting sector, although Lake Victoria fisheries are a part of the global economy. Some of the issues discussed on a broader perspective - including processing, distribution and utilisation have been published in the same series as this publication (Abila and Jansen, 1997, Jansen, Abila and Owino, 1999). Discussions presented in this paper are therefore intended to deal with the harvesting sector only.

The concept of 'community participation' has been fashionable for the last decade and has caused more confusion perhaps than any other term in the world of conservation and development. For the purposes of this paper, community participation will imply that local communities take an active role in decision making (either in partnership with other institutions or on their own) in the planning, implementing and evaluating their activities as they pertain to fisheries of Lake Victoria.

The introduction briefly discusses the methods for data collection. The first section presents information about community participation in fisheries management in the Kenyan part of Lake

Victoria during the pre-colonial and colonial times up to the early independence period in the 1970s.

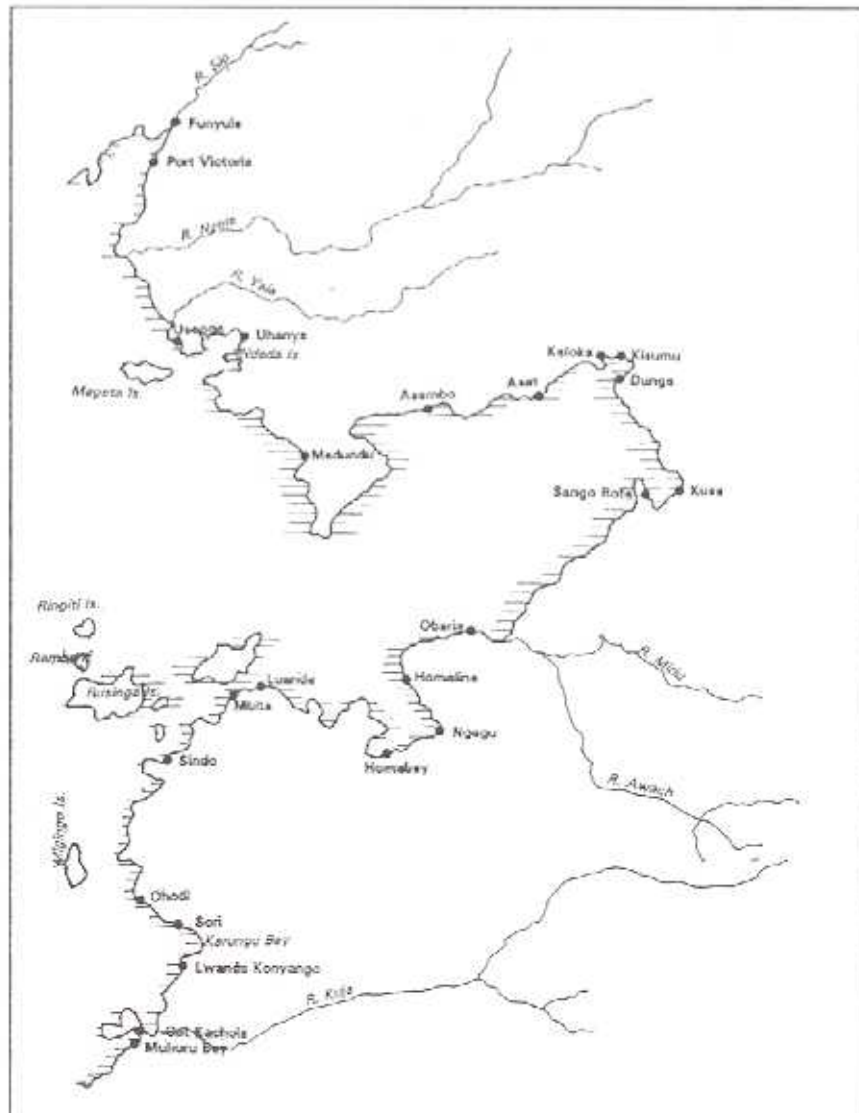
The second section examines the role of the Kenya Government in fisheries management. In this section, some of the Government rules and regulations for the fisheries management are outlined and their implementation discussed. In particular, the discussion focuses on the theory and practice; the fineness of rules and regulations clearly spelt out in the Fisheries Act, policies and regulations and their interpretation or implementation in light of the information collected from the field. The performance of the fishermen co-operative societies and the changing role of the fishermen beach committees is also discussed in the same section. Several case studies are presented to illustrate some points concerning the changing role of the Kenya Government in fisheries management and the consequences of these changes. Section three deals with how the fishermen have reacted to the changed Government's role in fisheries management.

The paper finally makes conclusions highlighting the major findings and recommendations.

Methods for Data Collection

The information presented in this publication is based on material collected from a number of field visits. In total 19 field trip reports were compiled from these field visits during the period between December 1996 and April 1998. In this paper these reports are referred to as field trip reports no. 1 - 19 which are filed with OSIENALA and in the office of IUCN in Nairobi. Parts of these reports have already been published in the Lake Victoria bulletins, a newsletter of OSIENALA.

The reports summarise the group discussions and individual interviews conducted with fishermen, fishmongers, fish consumers, fish processors' agents and co-operative officials in the said period. They also present information from smaller surveys conducted and contain my own observations on some of these issues. The field visits were carried out on fish landing beaches and market centres in the following districts: Suba, Homa Bay, Migori, Rachuonyo, Kisumu and Siaya



Some Landing Beaches on the Kenyan portion of Lake Victoria (map not to scale)



Women fish traders in Kibuye Market. As fish from Lake Victoria goes for export and fishmeal, the women sell mainly smoked and dried fish from other parts of the country

COMMUNITY PARTICIPATION IN LAKE VICTORIA FISHERIES MANAGEMENT

In the past, fishing in the Kenyan part of Lake Victoria was an activity closely integrated into the culture and traditions of the fishing communities. Fish provided important food and income for the people and there was an agreement among the users that fisheries resources had to be managed judiciously and in a sustainable manner. It was the clan elder who was responsible for this management. In the pre-colonial and much of the colonial time, fishing was limited to areas near the shore, within the wetlands and the river mouths (Geheb, 1996). The reason for the limited areas of fishing was the type of fishing gears and equipment available, and also the fact that sufficient amount of fish could be caught in these areas. The type of fish caught included: *Protopterus aethiopicus*, Mormyidae, *Clarias gariepinus*, *Synodontis victoriana*, *Labeo*, *Schilbe mystus* and the Tilapines. The fishing gears and equipment used were selective traditional cages and traps such as conical 'osadhe', 'pidhi' (Annex 1), 'ohunga', 'likira' or 'kira', 'migondho', 'gogo mar togo' (net made out of papyrus). Since canoes had not been invented, papyrus, 'Ambach' (*Aeschynomene elaphroxylon*) and reeds (*Phragmites*) were tied together and used as floaters.

The management system in the pre-colonial and colonial period was based on territorial user rights. These rights were vested in the clan elder, whose jurisdiction was not only on land, but also covered the water near shore. For clans whose land borders the lake, the rights extended up to what may be termed the 'kira line'. According to Geheb (1996) such waters within the 'kira line' were referred to as 'puodho', a term normally used to denote owned land, implying that access to it was restricted. Similar arrangements existed in rivers (Geheb, 1996). The beaches including watering, fishing and cattle drinking points were named after clan elders e.g. Kagoro in Suba District, Kaloka, Nyamware and Osieko beaches in Kisumu District. The clan elders' authority was respected and revered, for example, in Gwassii, Suba District the elders of the following clans: the 'oongo', 'mauwa', 'dibuoro', 'isuria', 'wasano' and 'achuodhu' had the responsibility for ensuring that the rules and regulations for fishing were observed and adhered to. Some of these rules included: strict observation of closed seasons (February to May) long rains 'koth chiri', (September - December), short rains 'koth opon'. They believed these periods were fish breeding

and spawning seasons - a fact that has been proved by fish biologists. During the closed periods, when people were forbidden to fish, they could eat fish which had been previously sun dried and stored '*obambo*'. They also depended on agricultural produce, livestock and poultry. Secondly there was restriction of canoe ownership and fishing gears, only two fishermen were allowed to own and operate beach seine nets in one beach. These two people were to possess high moral values, as a prerequisite for acceptance, (morality in this context meaning, those who would give fish freely - '*pocho*', '*alot*', '*bira*' to community members who had no fishing equipment). This was seen as an effective way of redistribution. Thirdly, outsiders (immigrant fishermen) were compelled to seek permission to set their equipment in '*kira*' waters. They had to adhere to the rules and regulations of the locals, and had to report to the clan elders before embarking on fishing activities. They had to give details of where they had come from and declare the type and number of their fishing gears. It was only after all these conditions were met, that the immigrant fishermen were allowed to settle within the clan in order to carry out their fishing activities. Fourthly, only those who were above 20 years old and particularly those married were allowed to fish. Marital status was seen as a measure of responsibility in fishing.

The water beyond the '*kira* line' was considered to be open access, and anyone could fish within it (Geheb, 1996). Though some fishermen maintained that the *kira* territory could go beyond what the eyes could see. However, given the available technology, fishing in such areas was technically out of the question due to unsafe floaters, the dangers of crocodiles, hippos and strong currents. And again there was no reason to fish in those areas since fish was abundant near shore.

Fishing was primarily for subsistence, but occasionally the fish would be bartered with agricultural goods produced by the '*joramba*' i.e. people who were living far inland, in non-fishing communities, specialising in agricultural and other economic activities. The clan-based regulations of the fisheries were very much a part of the wider system of socio-cultural relationships existing between clan members as well as sub clan members. The regulatory system of the fisheries resources was thus very much an integral part of

the local communities. All decisions, regulations, enforcement and punishment of offenders were made within the local communities. During the pre-colonial period and for large part of the colonial period, the management of the fisheries resources was carried out by the local communities.

Even as late as the 1970s important aspects of the traditional management system were still in place (Jansen, 1973). There was no investment in the fisheries from outside the area and there was little Government involvement in the fisheries management. According to Jansen (1973), in 1971 there were 4,100 canoes in the Kenyan part of Lake Victoria and about 90% of the canoes were owned by people who only possessed one canoe each. There was little absentee ownership, almost all of the canoes were owner-operated or owner-supervised. About 11,000 men were fishing from these canoes, either as owners of the boats and gear, or as owners of some of the gears in the canoe or as labourers. The income from the lake was shared relatively evenly by the men who participated in the fishing operations. Also the processing and trading sectors were dominated by small scale operators, most of them being women based in the local communities around the lake. Almost all the fish was consumed fresh or in a processed manner within the region. Respected clan elders still had an important say in the management of the fisheries. The system of *bira*, was still practised when the boats landed with plenty of fish.

In the early 1970s there were a few fishermen Co-operative Societies, but they also did not play a major role in the fisheries. According to the Annual Reports of the Fisheries Department in Nyanza, only about 100 fishermen, in total, had received loans from the co-operatives up to 1971 (Jansen, 1973).

Though there was lack of external market demand on the fisheries of Lake Victoria during these periods, this was not the major reason behind the booming fisheries of Lake Victoria at that time. The reason was perhaps the kind of management system, which was in place i.e. a system based on territorial user rights as described above. This system was replaced and changed by the centralised management system, as presented below.



Government Patrol Boat grounded at Fisheries Department, Kisumu

THE ROLE OF THE KENYA GOVERNMENT IN FISHERIES MANAGEMENT

The presence of a centralised management system dates back to the colonial period when the first institutions were set up to manage the fisheries and the first formal fisheries regulations were adopted. An important institution was The Lake Victoria Fisheries Service, which was established in 1947. Although Government institutions had been established to manage the fisheries and assist the fishermen, these institutions played a rather insignificant role up to the early 1970s. The Government fish scouts collected statistics on the landing sites, checked if the fishing gear was legal and sometimes participated in mediating disputes among the fishermen. At that time there was little conflict between the government officials and the fishermen. The Government fish scouts showed respect for the clan elders and their traditional control of fisheries.

However, two major initiatives which are worth being mentioned here were taken by the three Governments of East Africa from the 1950s, although their effects were not observed until the mid and late 1970s:

The Nile perch was introduced to Lake Victoria in the 1950s. The effects of this introduction only started to emerge in the late 1970s.

A decade later the population of Nile perch 'exploded' with Nile perch catch increasing from 1,000 tonnes in 1979 to 325,000 tonnes in 1989. The total production of fish from the whole of Lake Victoria increased during the same period fivefold from 100,000 tons to 500,000 tons (Greboval, 1992).

The three East African Governments together with the East African Freshwater Fisheries Research Organisation (EAFPRO) and the Food and Agricultural Organization of the United Nations (FAO) played an active role in introducing trawlers into Lake Victoria. The presence and effects of the trawlers, however, were not felt before the mid 1970s (Jansen, 1977, Siwo *et al.*, 1998).

It was, however, the Nile perch boom which greatly transformed the Lake Victoria fisheries and changed the fisheries from local and regional fisheries to global. Outside actors entered the Lake Victoria fisheries and made large investments both in processing plants for Nile perch and factories for processing a small sardine-like fish (*R. argenteus*) into fishmeal (Abila and Jansen, 1997).

In less than a decade, Lake Victoria had become a 'gold mine' as outside investors entered the scene, and discovered the 'conducive environment' for investment, transformed the Lake Victoria fisheries from "boom to bust".

In order to cope with the dramatic changes which occurred in the Lake Victoria fisheries as described above, the Government of Kenya adopted a new Fisheries Act in 1989 which was revised in 1991. The Fisheries Act (CAP 378 - 380) outlines rules and regulations for the management of Lake Victoria Fisheries. The Act is both comprehensive and impressive; spelling out who can fish, where, when and how. However, there are major weaknesses with the implementation of the Act, which have greatly affected local community participation in the management of the fisheries. Some of these shortcomings are outlined below:

Fisheries Officers

At the local level, in the fishing villages (beaches), it is the Government fish scout who is expected to implement the rules and the regulations of the Fisheries Act. The Government Fisheries Scouts are at the lowest level in the Fisheries Department. Their place of work is approximately 256 gazetted beaches on the Kenyan part of Lake Victoria. Their duties and responsibilities, in accordance with the Act, are to control the illegal fishing gears and methods, deal with net theft, provide security, collect fish statistics and check to ensure that fishermen, boats and gears are licensed. According to the information collected from the field, the extent to which these activities have been carried out leaves a lot to be desired.

Fishermen caught using illegal nets, are reported to be sometimes threatened and intimidated by fish scouts who confiscate their nets and demand bribes from the fishermen in exchange of their confiscated nets. Most of the fishermen interviewed throughout this study maintained that the fish scouts are frustrating them, and in order not to have their nets confiscated they

regularly pay small bribes to the scouts. These bribes can be either in cash or kind (fresh fish).

According to the elders interviewed, it was indicated that in the 1960s and 1970s the scouts played a positive role in the management of the fisheries alongside and in co-operation with the traditional clan elders. Together they could punish net thieves and ensure that fishing was carried out according to the stipulated regulations. They clearly expressed that there had been a change in the behaviour of the Government fish scouts during the last decades. This changed attitude could partly be attributed to the economic situation of the fisheries officers. About 20-30 years ago the real wage of the fish scouts was much higher than today. Today, with a salary of only 3,000 - 4,000 Kshs per month (USD 50-60 per month), and with a richer fisheries than in the 1970s (richer in terms of economics and not biodiversity) the temptation to augment one's salary by questionable methods has increased. According to a survey carried out on two landing beaches, the two fish scouts there collected together Kshs. 30,000 (USD 500) in bribes in one month, by allowing some 30 fishermen to use illegal gears and methods in an important fish breeding and spawning bays. This amount was/is equivalent to five months salary for each of the fish scouts.

Inadequate staffing and technical constraints

The tasks expected of the fish scouts are many, however, their number is limited. There is usually only one fish scout per gazetted beach. As noted above, there are approximately 256 such beaches and in each beach there is an average about 80 fishermen. This is a large number of fishermen to handle. In addition, there are a number of non-gazetted beaches where there are no fish scouts at all. The fish scouts are also hampered due to lack of equipment which is needed to perform their duties (Geheb, 1996; Abila, 1998).



*A woman frying Nile perch skeletons in Obunga.
The fried skeletons are sold to many markets in the lake region*

SOME EFFECTS OF THE CURRENT CENTRALISED MANAGEMENT SYSTEM

The changed role of the Kenya Government in fisheries management as discussed above, has contributed to changed attitudes and perceptions of the fishermen towards the lake's resources. In the pre-colonial time, during the colonial period and even up to the early 1970s, the local fishermen themselves were active in the management of the resources. The fishermen expressed and felt that the lake was theirs - it was their responsibility to manage the resources in a sustainable way. And when they successfully managed the fisheries resources, this was done with reference to their own accumulated experience and developed rules about who should fish, when, where and with what kind of fishing gear. It was not done with reference to any external act, rules or regulations. Many fishermen interviewed felt that this responsibility has been taken away from them. "We no longer own the lake, we are only expected to fish and go away since it is the role of the Government to manage the lake" was a comment from many fishermen interviewed. To illustrate this point of resource use and ownership with specific reference to the Lake Victoria fisheries resources, the following two remarks were received from the fishermen during the survey which clearly represent their changed attitudes and perceptions on use and ownership of the Lake Victoria fisheries resources:

"If the government continues to be relaxed in enforcing the existing rules and regulations of the fisheries, then we will soon have no fish left in Lake Victoria".

On the other hand:

"If the fishermen are left to manage the fisheries resources by themselves, then there will be no fish left in the lake in the near future".

What we can learn from these two remarks is that, to many Lake Victoria fishermen, the fisheries resources are considered to belong to the Kenya Government. The fishermen have drawn this conclusion because of the way in which the fisheries officers and fish scouts exercise their powers. By so doing, the fishermen have become marginalized to the extent that many are convinced that the lake and the fish actually belong to the government, and that it is the government's role and responsibility, not theirs (fishermen), to manage the fisheries. Their responsibility is therefore to use the resources in line with the government's laid down conditions and requirements. When they see how the government officials behave by colluding with unscrupulous fishermen in the plundering of the fisheries resources, they understand it to be the order of the day and take part in the mismanagement. Their previous responsible attitude and practices have been undermined by the way in which fisheries officials behave while implementing the Fisheries Act, policies and regulations.



A trawler at Asat Beach

GOVERNMENT FISHERIES REGULATIONS - THEORY VERSUS PRACTICE

Kenya Government Fisheries Act, Chapter 378 of the Laws of Kenya 1989, revised in 1991, includes a provision for the management of the Lake Victoria fisheries resources. In theory, rules and regulations governing the management and utilization of Lake Victoria fisheries restrict or limit the access to the fisheries resources. They are clearly spelt out in the Fisheries Act quoted above. The following are such rules: restricted net mesh sizes, prohibition of fishing in selected areas e.g. fish breeding and spawning grounds, prohibition of trawling and restricting the number of fishermen through licensing. But to what extent are these governing rules and regulations being enforced? Based on the information collected during the survey, it appears that there is considerable conflict between theory and practice of the rules and regulations governing the Lake Victoria fisheries management, in particular, those presented below:

1]: Use of restricted mesh size

According to the Fisheries Act, Section 43, Sub Sections 2,3,4 and 5 (a); it is illegal to use net mesh size of less than 2" for beach seine, 4" for gill nets and 0.5" mosquito nets for 'omena' (sardine) fishing, all of which when diagonally stretched. It is also illegal to catch from Lake Victoria with a standard length of less than 10" i.e. juvenile fish less than 1Kg.

Information collected from one particular beach, Dunga beach, near Kisumu, in March 1997 (Table 1 below), reveals that 34% of the Nile perch caught were juvenile. This clearly indicates that illegal mesh sizes are being used. The reasons for purposely catching juvenile fish can be attributed to high demand on mature fish from the fish processing factories (Abila and Jansen, 1997). The main way to satisfy the demand from the local market is to target the juvenile Nile perch, which is too small for the needs of the fish processing factories. An additional factor contributing to the use of illegal gear is the high price of gear with legal and recommended mesh sizes.

Table 1: Fish Caught at Dunga Beach, During March, 1997.

Date	Medium Size (Kg)	Juvenile Size (Kg)	Total (Kg)	% of Juvenile Caught
5/3/1997	151	135	286	47
7/3/1997	213	139	352	39
9/3/1997	104	80	184	43
11/3/1997	355	78	433	18
Total %	823	432	1255	34

Source: Survey-Data

Although data were collected for a short period, interviews made with the fishermen seemed to confirm that about a third of the fish being caught were juvenile. Rough assessment on some of the

beaches in Kenya indicated that, depending on the season and location of the beach, 10-35% of the Nile perch landed could be juvenile fish (Abila and Jansen, 1997). In the same report, it is quoted that the average mesh size used in the lake has reduced from 12 inches in 1981 to 6 inches in 1996.

2]: Prohibition of fishing in fish breeding and spawning grounds and river mouths

According to the Fisheries Act, Section 50 Paragraph 1; it is illegal to fish in breeding and spawning grounds. Fishing pressure is being witnessed now in fish breeding and spawning grounds. As indicated by available statistics, fish is being steadily depleted in the open lake. The average size fish caught has come down from 50-100 Kg in 1981 to 5-10 Kg in 1996. In addition, boat catch rates have reduced from a daily average of 400-500 Kg in 1981 to about 100-150 Kg in 1996 (O'Riordan, 1996; Abila and Jansen, 1997). Fish breeding and spawning grounds have therefore become the alternative fishing grounds. During the survey it was established that the following illegal fishing methods are being practised in fish breeding and spawning grounds: 'odundo', 'onimo', 'nyolucoro', 'otenda', 'ochuado', 'sese seke' and 'oseto'. (Annex 1). The names vary from beach to beach and are used interchangeably by the fishermen.

3]: Prohibition of trawling in Lake Victoria

According to the Fisheries Act, Section 43, Paragraph 1 (a) and (b); trawling is prohibited within five (5) nautical miles from any point on the entire shoreline of Kenyan waters and within the Nyanza Gulf. It is worth noting that within the Kenyan portion of Lake Victoria, the longest distance in the open waters is between Sori Bay and Mizingo Island and this distance is less than 5 nautical miles. This implies that one cannot legally trawl within 5 nautical miles in the Kenyan part of Lake Victoria waters.

Trawling is a highly mechanized and indiscriminate fishing method. Trawlers are well-equipped vessels fitted with trawl nets and driven by powerful engines. The trawlers are not only indiscriminate but they also destroy gears belonging to the local fishermen. Despite the fact that trawling is illegal, the practice has become prominent of late due to a high demand of Nile perch for export. In 1960s and 70s trawling in Lake Victoria was first carried out for research and stock assessment purposes. The stock assessment findings were to be used to determine the stock availability and to form a basis for fisheries management. Since the 1970s trawling

has been carried out for commercial purposes under the pretext of research (Siwo *et al.*, 1998).

There has been stiff competition between the local fishermen who use simple methods of fishing and the trawlers. This competition has occasionally generated into physical confrontation between trawlers and local fishermen being reported in the daily press. Some of the places where such fights have been reported are: Muhuru, Karungu, Kendu and Lwanda Bays. Both parties, the trawlers and the canoe fishermen, claim to have similar and equal access rights to the fisheries resources. However, the local fishermen are exploiting the fisheries resources for their basic survival, while the trawlers are interested in making profits. According to the information collected during the survey, there are about 9 (nine) trawlers operating in the Kenyan portion of Lake Victoria. These trawlers are: M.V Gogo, M.V Ratego, M.V Afya, M.V Cicilia, M.V Arua, M.V Tom, M.V Pluto, M.V Malindi and M.V Rebecca. All of them are operating from Asat beach. They have settled at this beach after being chased away from other beaches by local fishermen after serious fights.

Trawling is a very lucrative business, notwithstanding its costs in terms of resource depletion, an average daily catch for a well-equipped trawler with engine capacity of about 300 HP can catch over 1 ton of fish in a day (Siwo *et al.* 1998). After subtracting the operational costs i.e. fuel, crew, wear and tear, the profit is still high. The whole catch, in most cases, is delivered directly to the fish processing factories. The processing factories are very happy to receive the fresh fish from the trawlers, which is generally of a higher quality when delivered to the factories than fish which has been caught by canoes. This has made the trawlers' relationship with the fish processors very cordial and in most cases the owners of the trawlers have developed good business arrangements with the fish processors and their agents, to the extent that they (the fish processors) provide trawlers with fuel and spare parts on credit. Some fish processing factories actually own and/or control some of the trawlers.

The negative impact of the trawlers is not surprising. The genesis of trawling dates back to the late 1960s and early 1970s when it was recommended that a fleet of trawlers be introduced to harvest the vast amount of *Haplochromis* in the middle part of Lake Victoria. The plan was to convert the *Haplochromis* caught by the trawlers into fishmeal, which later would be exported and/or used for the regional poultry

industry. Jansen, (1973, 1977) in his report to the East African Freshwater Fisheries Research Organization in Jinja, Uganda, argued strongly against the trawler/fishmeal industry, and emphasized the negative impact the trawlers would have on the operations of the local fishermen.

4] Annual licensing of all fishermen and boats

The Government rules concerning licensing of fishermen and equipment was considered to be a way of restricting the number of fishermen and a method to control access to the fishing grounds (Fisheries Act, Section 9, Paragraph 1 (a), (b), (c) and paragraph 2). Through licensing, only a

limited number of fishermen would be allowed access, hence ensuring sustainable utilisation of the fisheries resources.

But many fishermen interviewed maintained that the system of licensing is being used for tax collection and fund raising. Through this, the government is able to raise more revenue by licensing more fishermen. Therefore it seems that anyone who is prepared to pay for a licence has no difficulties in obtaining it (Ikiara, 1999).

DAILY NATION, THURSDAY, AUGUST 20, 1998

Regional forum on lake formed

By JOHN OYWA

Stakeholders in the environmentally threatened Lake Victoria have formed a regional forum comprising scientists and community-based leaders in the three East African countries to co-ordinate the management of the lake and its resources.

The formation of the Regional Forum for Lake Victoria, according to a report released yesterday, was part of a six-point recommendation passed at a recent regional environmental meeting held at Arusha, Tanzania, and co-ordinated by a Kenyan NGO, Osiendela.

The 10-member forum, three from each of the countries and a co-ordinator, is expected to develop, oversee and co-ordinate community-based management strategies for Lake Victoria, whose future is threatened by the fast-spreading hyacinth weed, pollution and other environmental problems.

The report said the first regional forum is to be held in Jinja in October and this will be preceded by preparatory consultative forums in each of the three countries mid next month.

Delegates at the Arusha meeting resolved that the regional forum be used for capacity building

of fishing institutions, with specific attention to fisheries policies. It will promote sustainable use of other resources other than fish.

The forum will also facilitate information networking, surveillance machinery and will lobby to stop the rampant piracy in the lake in which fishermen have been either maimed or killed and their fishing gear stolen.

Fishermen, according to delegates, will also use the forum to improve fish storage and quality for both the local and external markets.

The workshop, which ended last week, also recommended that a campaign be launched to strengthen, harmonise legal and policy framework covering fisheries to help the sub-sector improve the economies of fishermen.

Participants at the workshop said agriculture, brick-making, dumping of industrial waste and lack of specific policies were responsible for the poor conservation of wetlands in Kenya and Tanzania. Uganda, they said, had an encouraging wetlands policy. The water hyacinth, the workshop was told, continued to wreak havoc in the East African countries.



Beach Chairman advises fishermen

BEACH COMMITTEE

According to the Fisheries Act, Section 42, Paragraph (1); beaches are designated sites for fish landing. Beaches are lead by a beach leader with a committee of between 5-7 selected by the fishermen. Although reference is not made to the beach committee in the Fisheries Act, they are recognized by the Fisheries Department, and this is another institution which is important for the management of Lake Victoria fisheries. Some of the tasks of the beach leader and his committee are to ensure that fishing is carried out according to the rules and regulations made by the government, to promote peace and security at the beach, solve any misunderstandings among fishermen/fishmongers, ensure improved sanitation facilities at the beach, collaborate with fisheries officers in acquisition of licenses for the fishermen and receive immigrant fishermen and take note of their gear which they must ascertain as validly belonging to them.

The tasks performed by the beach leader have traditionally been an integral part of the local fishing communities. It was the clan leaders who performed the duties in the past. When the Government decided to establish the beach committee system, many clan elders were elected to these posts by the fishermen and continued with the same tasks. The intention of the Government was that the beach leader and his committee should function as an intermediary institution between the fishermen and the Government.

According to interviews made with some older fishermen, there was a cordial co-existence between the government fish scouts and beach leaders, and this existed up to 1970s. The scouts recognized the chain of command. They (the scouts) could not reach fishermen directly, only through the beach leaders. The authority of the beach leaders was respected and revered by fishermen. This system of co-management existed quite well up to 1970s, when with the Nile perch boom, the attitude of the government officials seems to have changed. This was clearly witnessed in the many manipulated elections of beach leaders and committee members. Similarly, the institution has been subjected to a lot of external pressure by self seekers and those with narrow interests. The case study below illustrates the points about the role of traditional beach leaders under the current external pressures and given the fact that the role of the institution is not defined in the Fisheries Act.

Tako Community Initiative

Tako bay, which is next to Dunga Beach, Kisumu District has been known to be a fish breeding and spawning ground for a long time, by the local fishermen. All fishermen have for a long time been aware of the need to protect this bay in order to sustain the fish resources.

Between 1984 and 1993, the beach leader at Tako devised a system to safeguard the bay. The beach leader was a local clan leader. He recruited young men from his family and clan members and those from the neighbourhood to protect the bay. These vigilante groups used canoes to patrol and closely monitor the bay from neighbouring small islands. The vigilante groups were paid collectively by the local fishermen on daily basis from the proceeds of the daily catch.

This vigilance ensured that nobody could fish inside the bay, and those found there were severely punished through caning and fines imposed on them. Fishermen were therefore scared and could not risk to fish inside Tako bay. As a result fish was abundant in terms of species diversity and stock.

However, there were many immigrant fishermen, residing in neighbouring beaches, (Nyamware and Nyandiwa), who wanted to exploit the fisheries of Tako Bay.

The immigrant fishermen maintained that the lake is free to fish by all fishermen. For a long time they made preparations for challenging the beach leader and his vigilantes. The vigilante group, organised by the local beach leader, was aware of the planned invasion of the bay and they also prepared themselves for a fight.

The fight that erupted in 1993 was very serious and left five people drowned. The government officials, who had not been happy about the conservation initiative launched by the beach leader of Tako, since such an initiative was blocking their ways of soliciting for bribes from unscrupulous fishermen, ordered the withdrawal of the vigilante groups. The government officials argued that according to the Fisheries Act it is the government's responsibility to protect fish spawning and breeding grounds and that the beach leader and his vigilante had no 'locus standi' i.e. the rights recognised in law (Fisheries Act) to protect the fisheries. After the fight in 1993, the beach leader was evicted and all local initiatives to protect the bay ceased. Since 1993 Tako bay has been open for all fishermen, to fish with any kind of gear.

Trawlers destroy nets, say fishermen

By NATION Correspondent

Thirty-two fishermen at Kopiata beach in Bondo district yesterday complained that trawlers had destroyed fishing gear valued at about Sh600,000.

Led by beach leader John Ojwang' and Cllr John Orunda, the fishermen accused the provincial administration of condoning trawling in Lake Victoria.

On Monday morning, a fisherman, Mr James Bute, was injured after fishermen and trawler operators fought in the lake.

The beach leader said that there were eight trawlers which operated between 5 am and 7 pm and later docked at Luanda Kotieno and Matundu beaches. Fisheries Department officials, he said, were handicapped as the trawlers are owned by big shots.

WEDNESDAY, FEBRUARY 3, 1999



Fishermen weighing fish. Co-operatives Societies often have their weighing scales

FISHERMEN CO-OPERATIVE SOCIETIES

The fishermen co-operative societies were initiated by the Kenya Government to assist the fishermen in fish marketing, to mobilise savings, give credit to the fishermen and in general to help improve the fishermen's conditions of living. The registration of fishermen co-operative societies started in the late 1960s with the registration of the Kaloka Fishermen Co-operative on June 6, 1969 followed by the registration of Dunga Co-operative Society registered in 1970. At the moment there are over 25 such societies registered, with the following being a few examples: Rusinga Fishermen Co-op. Soc. registered in 1971, Muhuru Bay Fishermen Co-op. Soc. registered in 1972, Nyakach Fishermen Co-op. Soc. registered in 1973, Gwasssi Fishermen Co-op. Soc. registered in 1975 and South Kadem Fishermen Co-op. Soc. registered in 1975. Initially most fishermen co-operative societies performed well and the success may be attributed to the following:

- The geographical area from which the co-operative society drew its membership was limited - members were often drawn from one clan only.
- It was the clan elders who were in control of the co-operative management and because most fishermen were related to them through kinship, they behaved in a responsible way.

Leadership in the fishermen co-operative societies was seen as a responsibility and not as a means of amassing wealth.

- There was a high level of openness between the management and members (openness implies that no secrets are held from members, that details of all transactions are open to scrutiny/question by members (invoices, bank statements etc.)).

However, during the last decade, almost all the fishermen co-operative societies have collapsed, or are on the verge of collapsing. The following are the reasons for the collapse:

- Immigrant fishermen have joined the co-operatives and become members, and the homogeneity and cohesiveness of the co-operatives has disappeared.
- Due to the fact that so much money was obtained through the co-operatives, (mainly through the 10% commission charged to fishermen for selling their fish), outsiders who are not themselves fishermen, absentee gear owners and retirees, have taken over the leadership positions in the co-operatives, with a different motive and in collaboration with government officials have misappropriated their finances (Ikiara, 1999; Geheb, 1996).

- The emergence of fish agents and middlemen linked to the fish processing factories, has undermined the effectiveness of the co-operatives since these middlemen can buy fish directly from the fishermen cheaply without going through the co-operatives (Abila and Jansen 1997).
- Due to too much government interference and involvement in the fishermen co-operatives, the fishermen have lost ownership of these co-operatives. They therefore see no point in paying 10% commission to 'their' co-operative when no services are being rendered to them.

In his study, Ikiara (1999), noted that "fishermen co-operative societies which could play an important role in organizing fishermen and even in the management of fisheries are run under the Ministry of Cooperative Development, which knows only profit and no sustainability issue".

Below I discuss in more detail a few of the issues mentioned above to have contributed to the collapse of fishermen co-operative societies:

Immigrant fishermen ('welo' / 'onyalobiro')

Many fishermen follow the fish and migrate. Migration may be seasonally, annually or even daily depending on the environmental circumstances. It is noted above that in the traditional management system, after permission had been granted to the immigrant fisherman by the clan elder, he had to be settled within the local community. In so doing he was being integrated into the culture and traditions of the local communities, especially those safeguarding fishing activities. He had no alternative but to adhere to these rules and regulations.

This is no longer the case as settlement villages 'urban centres', for immigrant fishermen, have sprung up along the beaches of Lake Victoria. Modern day immigrants are residing, either temporarily or permanently, in these centres.

The socio-cultural and economical set up within various local communities has therefore changed, since groups of individuals with different cultural backgrounds have joined the local fishing communities. Cases of theft, indecent behaviour, prostitution and drunkenness have been the order of the day in most of these 'urban centres'. Many of the immigrants have brought with them illegal fishing methods and gears. Since they are not stakeholders in the local communities, they have nothing to lose even when fish is depleted, as they will always move on to new beaches. It is particularly the immigrant fishermen who will

bribe the Government fish scouts in order to be allowed to go on with illegal fishing practices.

Similarly, many of the immigrant fishermen have joined the local co-operatives and some have been elected to the management committee of the co-operative. Often, this has happened with the active support of the Government officials, whether they are from the Ministry of Cooperative Development or the Fisheries Department. It is the immigrant fishermen who in many cases have contributed to the mismanagement of many co-operatives.

Fish agents / middlemen

Many fishermen have become so disillusioned with the co-operatives that they prefer to sell their fish directly to the fish agents (Abila and Jansen, 1997). Some fish agents act on behalf of the fish processing factories by buying the fish from fishermen and then supplying the same to the factories. Most of these fish agents are influential and powerful. Many own outboard engine boats and vehicles for fish transportation, while some own canoes and nets and employ fishermen. Many times the fish is bought in the lake and brought directly to the factory.

However, fishermen have also become disillusioned with the fish agents. As a go-between, between the fishermen and fish processing factories, the fish agent is in a position to exploit the fisherman. Instead of buying fish at the agreed price (agreed between the agent and the fish processors), upon reaching the beach, the agent will set his own buying prices, which in most cases are lower than the agreed prices, the balance is retained by him. The situation becomes worse when there is only one agent buying fish at the beach. According to some fishermen interviewed, 'on seeing the catch, the agents behave as if he is not interested at all'. By displaying this attitude the fisherman becomes helpless and the middleman sets his own price. The fishermen are forced to sell at that price to avoid the unnecessary loss, since fish is highly perishable. Some narrated the kind of frustration they had undergone through the agents. "These people are so connected with the factory management to the extent that if you take your fish directly to the factory, by-passing them either you will not enter the factory, but if you enter, then three quarters of your fish will be declared "reject" and hence sold at a throw away price'. The agents will always make sure that fishermen have no direct contact with the factory owners (own observation from the beaches of Iloma Bay and Sori, Karungu, in 1997).

In places where there are many agents like Remba Island in Mfangano, the agents queue and get fish on a first come first serve basis, colluding and canvassing amongst themselves on the specific prices to be given to fishermen. They unite in order to keep the prices low, though on rare occasions the union breaks down and the situation degenerates into cut throat competition '*olar wa lar*'. This happens especially if the person last in queue is willing to get fish as soon as possible. It is in these rare occasions that the prices shoot up. Some fishermen interviewed maintained that they prefer some agents to others because of the trust which has developed. The trust and confidence is brought about by fish agents who are reliable, those that do not tamper with the fish scales and those that give constant and stable prices.

Arrangements are sometimes made between individual agents/factories and fishermen, in which the agents either employ the fishermen or

provide them with fishing equipment on credit and in return, the fishermen supply fish to him and, in the process pay back his loan. This strong patron-client relationship is geared towards serving the interests of the factories and middlemen. By establishing tight control of the fishermen who, in many cases are forced to supply them with fish, many fish agents have undermined the role of the fishermen co-operatives. They have become constraints for community participation in the marketing of the fisheries.

A case study at Dunga Fishermen Co-operative Society presented below may illustrate some of the issues discussed above about why co-operatives fail or succeed. From December 1996 to April 1998 information was collected on the development and the breakdown of Dunga Fishermen Co-operative Society



*A meeting of fishermen in Dunga Beach.
The fishermen regularly meet to discuss problems facing their community*

A CASE STUDY OF DUNGA FISHERMEN CO-OPERATIVE SOCIETY

Since its inception in 1970 the Dunga Fishermen Co-operative Society has been very successful in performing its duties on behalf of its members. Such duties include fish marketing, savings, investments and the general improvement of the welfare of the members. For a long time, the co-operative had been controlled by the local clan of the area - the Kolwa clan. However, the co-operative started to experience management problems immediately after the election of a new management committee in August 1996. Since that time the society has been faced with challenges and problems. Many fishermen left the society and established their own Dunga Fish Group. The causes of the problems faced by the Dunga Co-operative Society are discussed under the following headings:

- leadership and management,
- clans
- varied interests of the fishermen,
- Interdepartmental rivalry

Leadership and Management

During the last years the management of Dunga Fishermen Co-operative Society was infiltrated by people who were either absentee gear owners, retirees and those who had no connections with fishing at all, but became members of the society because of their social status. Given the fact that

these people were not fishermen themselves, they therefore did not understand the problems of fishermen and hence could not articulate and represent the interest of the fishermen. At Dunga co-operative society, during the crisis, the co-operative chairman, was an absentee gear owner who was also a teacher.

Soon after the election of the new chairman to the office, some of the investments of the co-operative, like a shop, restaurant and a small hotel at the beach, incurred huge losses. In the past, these investments had brought profit to the co-operative. The co-operative had to cease to provide loans to the fishermen which it had done up to 1996. With the new Chairman, the society's transparency and accountability was questioned, since the fishermen's records were no longer accessible and put out for them in the open to see unlike in the previous management regimes, all records and prices were written up on a blackboard, placed in the fish banda where the fish was weighed and sold.

Clans

Since membership of the co-operative societies is open to all, many immigrant fishermen have joined Dunga Co-operative Society. Many original Kolwa Clan members of the co-operative have either abandoned fishing or migrated to other

beaches. This imbalance therefore made the chairmanship position vacant in August 1996 and was occupied by one who was regarded as an outsider. For the first time in the history of the society, the elected chairman did not belong to the local Kolwa clan. The new chairman therefore made sure that outsiders took over the co-operative management, for instance, the secretary and manager was also from "outside". The local fishermen of the Kolwa clan were not comfortable with the new leadership. They felt the management committee of the society was hijacked by outsiders who mismanaged the co-operative finances and accounts. The new management committee also over-employed outsiders, about 5 in number to run the daily activities of the society (for example typists, office clerks).

Varied interests of the fishermen

The Dunga co-operative has lumped all fishermen landing at Dunga beach together. These fishermen are involved in very different types of fishing, fishing for 'omena', (the small sardine-like fish), tilapia and Nile perch. It is, however, only in relation to the sale of Nile perch, that the co-operative provides services of marketing for the fishermen. The problem is that the same 10% commission is being levied on all types of fish regardless of whether or not the fish is being marketed through the co-operative. In particular, the many 'omena' fishermen felt that this was unfair since they sold their fish directly to the fishmongers and not through the co-operative. Again, some *omena* fishermen were not members of the co-operatives hence never qualified for loans and or bonuses, so they were asking where their 10% commission levied was being taken.

Interdepartmental rivalry;

Role of Fisheries Department and Ministry of Co-operative Development at Dunga Beach

According to interviews with many fishermen at Dunga beach, it was clear that during the last years the officials of the Ministry of Co-operative Development have abandoned their roles of

training the fishermen co-operative officials and focused on getting access to part of the 10% commission paid by the fishermen to the co-operative society

According to the estimates, the fishermen belonging to the Dunga Co-operative in total pay about one million shillings per year as commission. This is the money that many would like to have access to.

Similarly, the Fisheries Department officials at Dunga also, during the last years, seem to a large extent to have abandoned their roles of law enforcement, education and extension services and instead focused on soliciting bribes from fishermen. In essence the government officials from the two departments try to get a share of the income from the economically rich fisheries.

During the said period, an intensive rivalry between the two departments was witnessed when a group of fishermen withdrew from the co-operative society and established their own Self-Help Fish Group and landed their fish on a new beach. According to the fishermen interviewed the Fisheries Department officials encouraged the establishment of this group since the officials hoped it would eventually be able to control it for their economic advantage.

During the election for Dunga Co-operative Officials, which took place in November 1997, (in which the author participated as an observer), there was a conspicuous interference and manipulation of the election process by the officials of the Ministry of Co-operative Development and Fisheries Departments. There was uproar among the local fishermen when a candidate of their choice was falsely disqualified. The 'people's choice' candidate has been an active fisherman, belonging to the Kolwa clan who for the last one and half years have fought against the mismanagement of the society's finances by the management committee in collision with the government officials.



Centre for Obunga Mbuta Women Group.

SELF HELP ORGANISED FISH GROUPS

Fishermen in many beaches and market centres have initiated Self Help Organised Fish Groups. In order to be allowed to operate the Ministry of Culture and Social Services registers these groups. But this Ministry, in contrast to the Fisheries Department and the Ministry of Co-operative Development, has little control over these groups.

The self-help groups seem to take on many of the same tasks, which the Fishermen co-operatives were supposed to carry out. Many groups sell their fish to the purchasing agents of the fish export factories. When the fishermen sell through a group they are in a stronger bargaining position than when selling individually to the agents. Many self help groups have tried to avoid the agents and sell directly to the factories. A few have succeeded. Many of the self help groups have provided loans for their members. A usual saving technique for the group members is the merry-go-round through which each member saves a little each week in a pool. The total sum is allocated to each member in turn. The self help groups also take on many welfare functions and the size, membership and functions of these fish groups vary, some groups are only for *omena* fishermen or Nile perch fishermen, while other groups are for women fishmongers only. Many groups are formed as a result of a section of the fishermen wanting to leave a corrupt co-operative, as was the case of Dunga Fishermen Co-operative Society.

During the fieldwork successful self-help groups were observed in Kiwa Island in Suba District and Muhuru Bay in Migori District among others.

The following factors have contributed to the success of these self-help groups:

- the self help groups have emerged as initiatives from the fishermen and fishmongers themselves after undergoing the frustrations discussed above. The idea of the self-help groups, unlike the government co-operatives, was not imposed externally.
- there has been little or no government involvement in the management and running of the self-help groups, except in the registration of the groups.
- the self-help groups operate in limited geographical areas with the membership of the groups being locally drawn from one or two clans only. The groups are much more homogeneous than the government fishermen co-operative societies.
- it is the members of the group themselves who decide which tasks the group will be engaged in, in accordance with their memorandum of understanding.
- the leaders of the groups are democratically elected. Often it is the respected clan elders who are elected by the fishermen or respected women leaders in the case of fishmongers.

Despite their being important as emerging institutions which represent the interest of the fishermen, these self-help groups are still limited not only in scope but also in the context of community participation as defined in the text.

CONCLUSIONS

The management of Lake Victoria fisheries has been transformed during the last two decades, from traditional to central management systems. Traditional management systems, based on the clan institutions, provided a sound management for Lake Victoria fisheries. The management framework was based on the territorial user rights, with enforceable clear rules and regulations on who could fish where, when and how.

The Government has played a role in fisheries development since colonial times. However, it is mainly since the 1970s Nile perch boom that the government activities have affected the development of the fisheries and undermined the traditional management system. The rules and regulations for the fisheries and the development plans made by the government are well articulated in the Act. However, the information presented in this report conveys a rather negative picture of the way in which the regulations and the development plans are being implemented at the local level. Almost all people interviewed emphasised that the behaviour of the Government officials in the field has changed for the worse during the last decades. Instead of managing the fisheries resources sustainably, they have focussed on exploiting the fishermen for their (officials') economic advantage. This has thrown Lake Victoria fisheries into a management crisis hence compromising the resource base and, by extension, the living standards of the fishing community.

In response to these frustrations, and given the importance of Lake Victoria fisheries in terms of employment generation, income and food security, the fishermen are coming up with their own institutions, the self help groups, which they would like to operate without any intervention from the government.

RECOMMENDATIONS

The views expressed by the Lake Victoria fishermen as outlined above suggest that it would be beneficial if the government played the role of providing an enabling environment, through policies and legislation, which institutionalized community participation in Lake Victoria fisheries management.

The self-help groups, which the fishermen themselves have formed, provide an opportunity and a basis for community participation and hence should be encouraged to operate. Their capacities should be strengthened to take on tasks related to both the management of the fish resources in the harvesting sector and the sale of fish in the marketing sector.

A management system to be put in place must recognize the inherent ownership rights within the fishing communities. The government should allow and encourage the local fishing communities through their (fishermen's) emerging organizations to observe, implement and enforce the fisheries regulations as stated in the Fisheries Act. There is enormous capacity within the local fishing community (in contrast to the government) which should be exploited for sustainable fisheries management.

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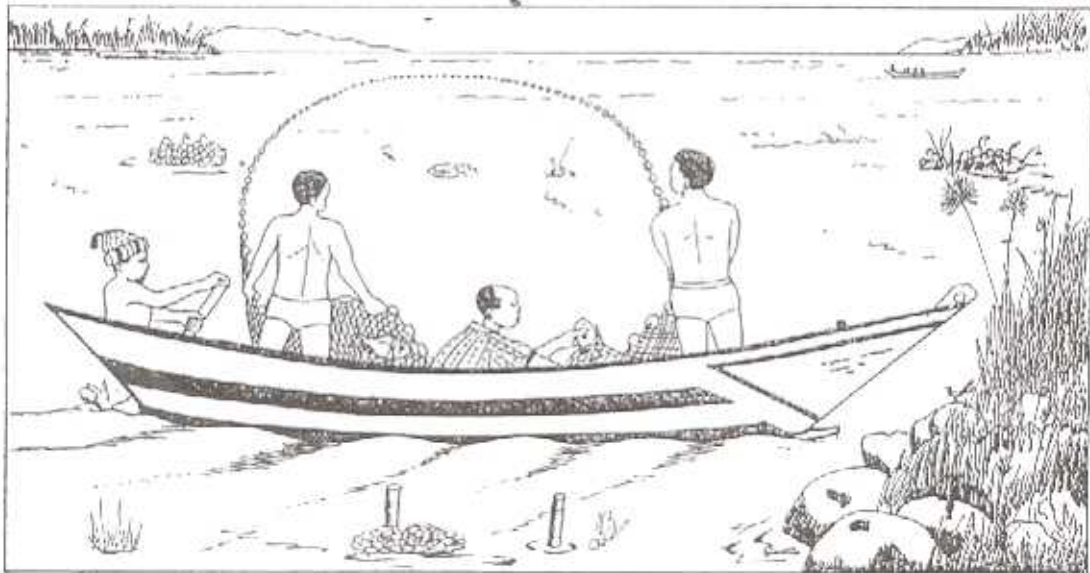
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ANNEX 1

Odundo'

'Odundo' is a form of a beach seine which is less than 2" and is different from other beach seines in that the bag (codend) is detached from it and set in the direction to which the seine is pulled. The seine is hauled inside the canoe by approximately 5 crew members. As both sides of the seine are pulled to come closer to each other, the bag which is also cast and erected by the use of poles towards the direction the seine is pulled slowly towards closing the mouth of the bag. By the time the whole of the seine is hauled into the canoe, apart from those fish that are entangled into the seine, most of the catch is emptied into the bag (Figure 1).

Figure 1: 'Odundo'



'Nyoluoro'

This fishing method is mostly done in the river mouth, along the river banks. A "mosquito net" of less than 6 mm is cast on the river bank with both sides of the float bar resting on the river bank while the body of the net is in the river, in areas infringed by macrophytes e.g. papyrus, reeds, water hyacinth. These plants form a habitat for riverine fish such as *Clarias*, *Mormyrus* and *Protopterus*. The net is set and encloses these plants all of which are growing along the river bank. The fishermen then cut off these plants and remove them out. Then they move both the float lamps to meet at a central place, thereafter the body of the net is gradually pulled until it reaches the shore. All the fish and any other organism which were originally among the macrophytes and were enclosed will not escape the dragnet (Figure 2).

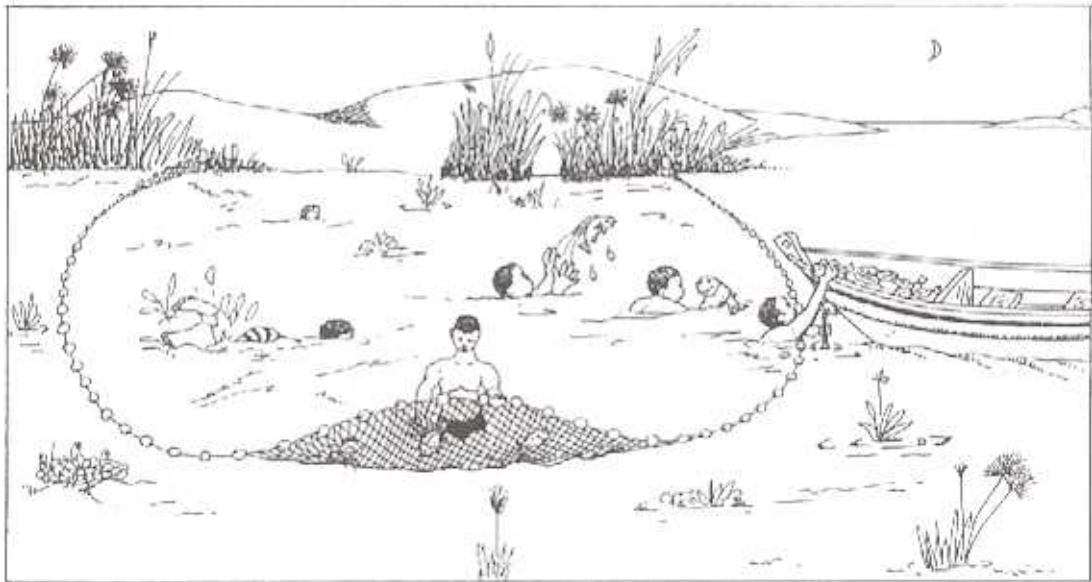
Figure 2: *'Nyoluoro'*



'Onimo'

'Onimo' literally means "to go swimming under water". It is a form of fishing where fishermen cast their nets to form an enclosure near the shorelines which are characterized by stones, wetlands etc. Then they go under water and catch the fish by hand, those they can not catch will get scared and as they try to escape get entangled in the net. Nets of 4" and below are used. A number of these gill nets are strung together to form a single net of 300 - 400 metres long. The popular fish species caught through this method is tilapia '*nyamami*' (Figure 3).

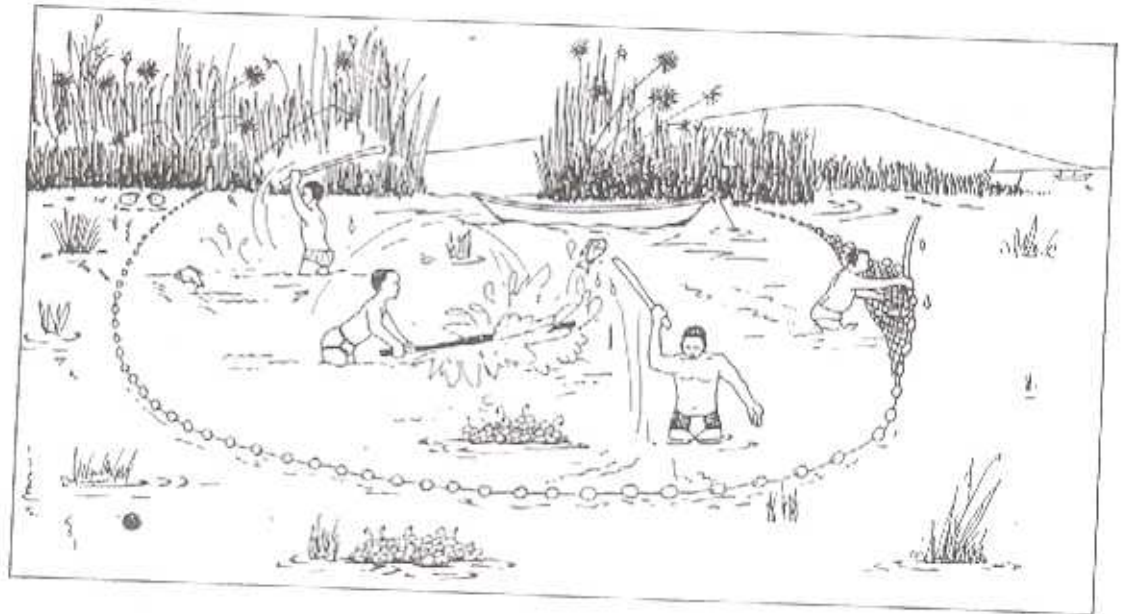
Figure 3: '*Onimo*'



'Ochuado'

'Ochuado' also literally means "hitting with a stick". It is rather similar form of fishing with 'onimo', i.e the nets are set in the same manner. The difference is that instead of going under water, fishermen use big sticks to hit the water very hard so that fish get scared and swim towards the cast nets where they get entangled. The net is then hauled into the boat, fish removed and the net re-set in a different place. The popular fish species caught here are also tilapia '*nyamuni*', as above (Figure 3).

Figure 4: '*Ochuado*'



IUCN - The World Conservation Union

Founded in 1948, The World Conservation Union brings together States, government agencies and a diverse range of non-governmental organizations in a unique world partnership: over 900 members in all, spread across some 138 countries. As a Union, IUCN seeks to influence, encourage and assist societies throughout the world to conserve the integrity and diversity of nature and to ensure that any use of natural resources is equitable and ecologically sustainable. The Union has helped many countries to prepare National Conservation Strategies, and demonstrates the application of its knowledge through the field projects it supervises. Operations are increasingly decentralized and are carried forward by an expanding network of regional and country offices, located principally in developing countries.

The Eastern Africa Regional Office

IUCN established the Eastern Africa Regional Office (EARO) in Nairobi in 1986 which facilitates the Regional Programme. EARO covers Kenya, Tanzania, Uganda, Ethiopia, Eritrea, Sudan, Somalia, Djibouti, the Seychelles and Comoros. Through its technical group, established in the early 1990s, EARO assists members and partners in the region with capacity building through the implementation of projects and programmes, networking and technical advice. Specific areas of expertise include: protected areas, ecosystem management, biodiversity conservation, environmental planning and strategies and support to environmental NGOs.

Socio-economics of the Nile Perch Fishery on Lake Victoria

One of the many projects within the Eastern Africa Programme of IUCN is the Socio-economics of the Lake Victoria Fisheries. The project's objectives include: understanding the socio-economic conditions of various stakeholders in the Lake Victoria fishery and building capacity to manage the fishery in a sustainable and equitable manner – with involvement of the local communities. The project is being implemented in collaboration with government research institutes and local NGOs in East Africa (Kenya, Tanzania and Uganda). The project has its own publication series entitled "Socio-economics of the Lake Victoria Fisheries".

The following reports have appeared:

1. *Rich Fisheries – Poor Fishermen: Some Preliminary Observations about the Effects of Trade and Aid in the Lake Victoria Fisheries*, by Erik G. Jansen
2. *From Local to Global Markets: The Fish Exporting and Fishmeal Industries of Lake Victoria – Structure, Strategies and Socio-economic Impacts in Kenya*, by Richard O. Abila and Erik G. Jansen
3. *Trawling in Lake Victoria: Its History, Status and Effects*, by James Siwo Mbugu; and Albert Getabu, Andrew Asila, Modesta Medard and Richard Abila
4. *Traditional and Central Management Systems of the Lake Victoria Fisheries in Kenya*, by John P. Owiwo
5. *A Review of Biodiversity and Socio-economics Research in Relation to Fisheries in Lake Victoria*, by Okeyo-Owuor, J.B.
6. *Constraints and Opportunities for 'Community Participation' in the Management of the Lake Victoria Fisheries*, by Erik G. Jansen, Richard O. Abila and John P. Owiwo

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