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Gender Integration in the Management of the Lake Victoria Fisheries*

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Abstract
The riparian governments of Lake Victoria have adopted co-management approach in fisheries management. This paper discusses gender mainstreaming in fisheries management of Lake Victoria, user rights, successes and challenges of the process. This paper has used gender-disaggregated data from several studies carried out around Lake Victoria using quantitative and qualitative methods. Results revealed an increase in female-headed households in the fisher communities. Men earned an average of $17.8 per landing while females earned about $7.72 per day, signifying unequal distributions of benefits by gender related activities. There has been an increase in registration of both men and women in the BMU, but women were lowly positioned in committees. In conclusion, the representation of women in decision making has improved, but not significantly translated into increased benefits, access to and control of assets and resources. There is a need to achieve an equitable gender responsive fisheries management regime.

Key words: Lake Victoria, gender, user rights, resource access, fish marketing, incomes co-management.

Introduction

Lake Victoria is the second largest freshwater lake in the world, with an area of 68,000km^2 and about 30 million people living in its catchment, many of whom depend on it for employment, food, water for domestic and industrial use, transportation, recreation and hydro-electric power. It also earns foreign exchange for the three riparian countries (Kenya, Tanzania and Uganda). Most of these export earnings come from the Nile perch *Lates niloticus* fishery, although other species are involved in the regional trade.

Despite the fact that the fisheries of Lake Victoria play a crucial role in the livelihood of many people, the resources are under pressure from the increasing human population around the lake, most of whom are poverty-stricken and lack of alternative livelihoods. The number of boats and gears has increased as have illegal gears and methods in order to meet the rising demand for fish. Although Lake Victoria being a shared resource each country has been managing its portion separately but this situation has changed following the establishment of the Lake Victoria Fisheries Organization, which is charged with coordinating research and management of the lake. Fisheries management was previously the responsibility of the central government using a command and control system with the users making little contribution to decision-making. The recognition that government agencies acting alone could not ensure sustainable practices has provided an argument for greater involvement of communities and civil society in the management of natural resources (Ostrom, 1990; IIED, 1994; Mearns, 1996). The devolution of natural resource management is usually based on three arguments, (i) the inability of the government agencies to manage natural resources, especially at grass roots level; (ii) the ability of local institutions to formulate rules and regulations that enable them to manage their resources effectively; and (iii) the cost-effectiveness of devolution following a reduction in the transaction costs associated with managing common resources (Berkes, 1989; Vedeled, 1992).

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Resource user and access rights

Access to the Lake Victoria fisheries has up to now been unrestricted and anyone is free to enter the fishery after purchasing a fishing license, a situation that is a serious threat to the fishery and the income that it provides. The only restriction is the national boundaries, although passage between these boundaries occurs in the open waters of the lake, especially between Kenya and Uganda. It has been argued that the Lake Victoria fisheries cannot be managed effectively without well-defined user rights and access regime policies (Abila *et al.,* 2000).

The devolution of management natural resources is perceived to be beneficial as the resources are often locally specific, diverse and with multiple uses and can be improved by using local knowledge. Diverse uses will give rise to conflicts which the local resource users might be better able to resolve because of their shared interests. In fisheries, co-management is seen as a means of achieving equity and social justice through power-sharing by government, fishers and other stakeholders. There are often thorny issues in co-management that may involve social and economic divides in a community, including gender roles that interlink ethnicity, economic status and age besides sex identities.

Group members of a common property regime face the problem of organising themselves in order to change from a situation of independent action to one of collective action and coordinated strategies that maximise benefits for the group while reducing adverse effects. For institutional arrangements to be maintained over time, workable procedures must be developed for monitoring the behaviour of fishers, sanctioning non-conforming behaviour and settling conflicts. The cost-effectiveness of rules to organize fishing activities depends upon the physical nature of the resource, the rules-in-use and the level of conformance to the rules (Ostrom, 1990).

Co-management on Lake Victoria

Since 1998 the governments of Kenya, Tanzania and Uganda have been in the process of developing co-management of Lake Victoria's fisheries. In 2003 the Lake Victoria Fisheries Organization received funding from the European Development Fund for the implementation of co-management as part of the Fisheries Management Plan. This aimed to promote community participation in fisheries management through formation of Beach Management Units (BMU). This project has organised a total of 1069 BMUs (307 in Kenya, 433 in Tanzania and 355 in Uganda) which include all the people engaged in fishery activities at officially gazetted landing sites who were registered and became BMU members after meeting all the conditions set out in the BMU guidelines. Their participation in fisheries management entails control and access to fisheries resources through licensing and taxation and BMU executives are involved in the selection of applicants for fishing and boat licenses. Access to the lake depends on long-term residence in the local community, high family dependency on fishery, compliance to fisheries regulations and fishing skill.

Since communities are not homogeneous not all stakeholders have the same adaptive capacity because of individual variations in ability, a desegregated approach needs to be taken. This paper examines desegregation by gender which plays a defining role in the fisheries on the lake. Gender defines the socio-cultural roles, functions and characteristics of men and women as they relate to each other within a specific social and cultural context and shapes people's access to, use of and control over natural resources. Therefore, gender issues cut across resource management activities in several ways. First, men and women do not have equal or the same rights over natural resources. Second, division of labour based on gender gives men and women different priorities and they benefit differently from the resource. Third, men and women have different realities and therefore use natural resources in different ways and at different rates. The knowledge, skills and practices of both men and women must play a part in the conservation and management of natural resources and so it is necessary to define the roles of men and women and their knowledge, needs and contributions to resource management. This paper is based on information sourced from four studies carried out by the Research Institutes in each country through the Lake Victoria Fisheries Organization (LVFO, 2007, 2008; Nunan *et al*., 2007; Odongkara *et al*., 2006), and some of the findings of these investigations are discussed in the sections that follow.

Stakeholder characteristics by gender

The average age of fishers was 36.0 years for men and 35.6 for female while crew members are relatively young (about 80% being less than 35 years old) and most were school dropouts entering the fishery for the first time. Most were either in monogamous or polygamous marriages. A relatively high proportion (26%) of households were headed by women as the open-access fisheries on the lake enable widowed women, as well as unemployed youth make a living from it. This was evident in the fact that 25% of widows were not permanent residents at the beach where they were currently located, while 19% of married women were not with their spouses and therefore headed their households single-handedly for most of the year. These data draw attention to the importance of including women in all aspects of governance of the fishery.

Both men and women in each country tended to be poorly-educated, with a high proportion being primary school drop outs, especially amongst women (Table 1). The lack of education will limit their chances of finding alternative employment outside the fishery but poorly-educated males are more likely to be employed as a crew member and be absorbed into the fishery while the women had to get married first. In 2005 it was noted that more boys than girls were involved in the fishery: in Kenya an average of 2.2 male and 1.4 female children per household: and Uganda male 0.13 and 0.03 female (LVFO, 2007) Over 80% of men and women indicated that they reside permanently on the landing sites, which is one of the qualifications for joining a BMU.

Table 1. Socio-economic profile of fishers (% of respondents) on Lake Victoria (from Nunan *et al*., 2007).

	Kenya		Uganda		Tanzania	
	Male	Female	Male	Female	Male	Female
Age	38	39	37	34	36	35
Permanent residence at the landing	78	76	90	83	92	88
Household heads	71	29	75	25	75	25
Education: No schooling	5	16	8	15	3	13
Incomplete primary	26	34	19	17	8	18
Complete primary	33	37	19	17	82	63
Incomplete Secondary	17	11	24	16	3	4
Complete Secondary	18	2.5	3	2	7	3
Post-secondary	2	0.5	1	0.5	1	
Access to banks	26	10	42	18	22	7

Gender Roles in the fishery

The fisheries of Lake Victoria are highly characterized by gender with men catching the fish while women dominate post-harvest activities such as fish processing and trade (Table 2.). Males are also dominantly employed as boat crew and fish factory agents and transporters of fish. Many (40.5%) of the boat owners' wives were involved in farming while only 23.6% of them were involved in fishery-related activities. The greatest proportion of wives that were involved in fisheries was reported from Kenya (48%) compared to Uganda at (16%) and Tanzania (10%). Women respondents indicated that 56% of their husbands were involved in fisheries-related activities such as owning boat, being a crew member or trading in fish.

Table 2. The proportions (%) of men and women employed in different aspects of the Lake Victoria fisheries (LVFO data base 2005-2007).

	Men	Women
Boat owner	97	5
Processing/trade		61
Trading		29
Factory agents*	92	8
Other		5

* Kenyan data only (Yongo *et al.,* 2009)

Ownership of resources

In patrileneal communities men have always owned productive assets such as land, animals, trees, farm inputs and fishing gear while women may have access rights to, but not control over, family resources. This functioned well in traditional societies where gender roles were clearly defined and there were inbuilt safeguards for all the members of society. But with commercialisation of commodities, the breakdown of traditional systems and the changing roles of women in the society there is a need for them to have some control over productive assets to meet their needs. Among the fishing communities, about 69% of women and 78% of boat owners (men?) had access to farm land; fewer fishers (both men and women) had access to farmland in Uganda because land ownership policies differed from those in Kenya and Tanzania. Ownership of land is significant as a means of increasing the income and food production in fisher households and provides some security of fishing were to decline.

Patterns of access to resources by gender

Although both men and women are in the fishery to earn a living, men are at an advantage because they can inherit assets from their parents, but a woman has to purchase them or can only be a custodian on behalf of a male child. Most women who have sole ownership of boats are mostly separated or from polygamous families and staying on their own. The fact that they have to break, or not establish, relationships with men highlights the importance of culture in denying women access to assets; if they are with a man then he will control the assets. This was confirmed by a case study in Kenya which found that even if a woman had contributed most to the family assets the community considers that those assets belong to her husband. According to a discussion group in Uganda most women entered the fishery to assist their husbands in post-harvest handling and processing. It is clear therefore that marriage is the commonest way for a woman to enter the fishery.

Economic empowerment is another avenue through which women gain access to fishery resources. Most women, especially in Kenya, indicated that they were involved in petty trade to raise money to purchase fish. Some have also learned the skills needed to be middlemen between the boat owners and traders from the hinterland markets. These women get fish from the boats, sell them for a small profit to an outside trader, and then pay the boat owners their due. At some beaches, where competition amongst fish traders is high, boat owners expect women trader to make a fixed monthly or weekly payment, in addition to the cost of the fish, to maintain the boat. So women with little cash have limited access to fish and are therefore forced to buy from other women at a higher cost.

Surprisingly, women married to fishermen are not guaranteed access to their husband's fish and only 6% get fish from their husbands. Most women (68%) buy from any fishermen, while 21% of them have regular suppliers, 1% get it from boyfriends and 4% from their own boats. Almost all women pay cash but about 7% buy on credit This phenomenon of changing sources of supply is probably a result of commercialization of the fishery (Madanda, 2004). This was a survival strategy to

diversify fish supply sources so that if the husband failed to catch anything there would still be some income on that day.

Fish exports from the lake created a division of labour where men and women deal with different species (as in agriculture sector where men grow cash crops and women grow crops of lesser value). Women mainly have access to fish species that are not exported such as tilapia and dagaa, and Nile perch of low quality and value while most men are involved in the more valuable Nile perch fishery. About 60.6% of boat owners target Nile perch, 20% tilapia, 19% dagaa and 1% other species. The Nile Perch slot size (50-85cm) has implications for women fish traders who cannot afford to buy these fish, which is why women traders do not obtain fish from their husbands' boats because these fish are destined for the export market which is dominated by male fish agents. The second issue is that women had access to only 40% of the boats, which target tilapia and dagaa, because the remaining boats target Nile perch and sell their fish to factory agents. This creates stiff competition amongst women fish traders who devise strategies to ensure supply of fish but leaves them vulnerable to exploitation by male fish suppliers.

Access to fish by women is not homogeneous across the lake; Ugandan women tend to have more access to tilapia and dagaa (50%) than those in Kenya (44%) and Tanzania (24%). Most boats in Tanzania target Nile perch, while Kenyan woman trade more in *Rastrineobola* ("dagaa/mukene'') and Ugandan woman in tilapia. Women only participate in the Nile perch fishery by dealing with products of low value, such as factory rejects. Dagaa is preferred by many women because of its affordability and the fact that it can be dealt with in any quantity, from small dishes to large sacks and is therefore suitable for women with differing financial resources.

Fish marketing and gender

Women predominate in local marketing of fish while males dominate the export market; the latter mainly deals with Nile perch leaving other species for the local and regional markets. The export market is characterised by relatively few persons but deals with high-value products while local markets involve many small traders. Wealth from the fishery is therefore unequally distributed and where only a few fishers dominate most benefits go to men. About 92% of the fish agents were men who also derived an income from owning boats.

Both men and women are involved in the regional fish trade but it is dominated by women in Kenya and Uganda and by men in Tanzania (Table 3). The regional fish trade involved four fish species, tilapia, dagaa, Nile perch, and haplochromines. Most traders who dealt in tilapia sold smoked, fresh and dried forms while Nile perch traders dealt mostly in by-products such as fried skin and frames and factory rejects, as well as undersized fish. Dagaa (mukene) and haplochromines were mostly sold in a sun-dried form. People involved in cross-border trade are very important in the chain of fish distribution but they have no organisation that enables them to participate in co-management and most were ignorant of the fisheries regulations. It is important that they become involved because they deal in undersized fish and therefore contribute the management problems this creates.

Table 3. Socio-economic profile of cross-border traders involved with the export of fish from Lake Victoria (from Odonkara *et al.*, 2006).

	Kenya	Tanzania	Uganda
% males	36	83	46
% females	64	17	54
Mean age (years)	38	37	31
Dominant education level	Incomplete Primary	Incomplete Primary	Incomplete Primary
Years in fish trade	11	9	4
Dominant type of traders	Wholesalers, retailers	Wholesalers, retailers,	Wholesalers
Species most traded	Tilapia	Dagaa	Dagaa

Benefits from the fishery by gender

Incomes from fishing activities

The socio-economic monitoring study (LVFO, 2008) indicated that incomes of the fishing community in Kenya rose between 2007 and 2008 but in Tanzania the incomes of boat owners and women increased, but that of boat crews decreased (Table 4). In Uganda incomes declined throughout the fishery with women's incomes being most severely affected. The income of boat owners with engines who targeted Nile perch surpassed their counterparts by 50% with tilapia fishers earning the least.

Table 4. Changes in the income (US$ per month) of various members of the fishing community on Lake Victoria between 2007 and 2008 (from LVFO, 2008).

		2007	2008	Change	Change (%)
Kenya	Boat owners	8.68	13.40	4.72	54.38
	Boat crew	3.34	5.00	1.66	49.70
	Women	3.96	5.00	1.04	26.26
Tanzania	Boat owners	16.76	26.84	10.08	60.14
	Boat crew	3.80	2.07	-1.73	-45.53
	Women	3.09	7.80	4.71	152.43
Uganda	Boat owners	19.09	13.20	-5.89	-30.85
	Boat crew	7.79	4.70	-3.09	-39.67
	Women	16.12	5.60	-10.52	-65.26
Mean	Boat owners	14.84	17.81	2.97	20.01
	Boat crew	4.98	3.92	-1.05	-21.17
	Women	7.72	6.13	-1.59	-20.59

Changes in Household Incomes by gender

Respondents were asked to state how their incomes had changed in 2007 and 2008 from the year before and most respondents indicated that their incomes had declined, with only a quarter in each category indicating that it had increased (Table 5). The fewest respondents indicating an increased income were women although there was a slight increase in the percentage of respondents who thought their incomes had increased in 2008 compared to 2007. Most boat owners (52%) who reported increased incomes were from Tanzania, compared to 37% from Kenya and 25% fromUganda. The largest proportion of fishers whose incomes had declined were in Uganda (61%), followed by Kenya (52%) and Tanzania (43%). Those who reported increased incomes attributed this to better fish catches and higher prices, while those reporting a decline blamed it on fewer fish or a decline in the stock.

Table 5. Perceptions of income changes by gender, 2007 – 2008. Data are expressed as the percentage of respondents who agreed with the question (from LVFO, 2008).

Question	Income in 2007			Income in 2008		
	Boat Owners	Crew	Women	Boat Owners	Crew	Women
Increased	21	23	16	39	28	27
Decreased	71	64	71	52	62	60
Stayed the same	7	11	11	8	9	11
Don't know	1	2	2	1	1	2

Access to Savings and credit

Access to financial services is needed for fishing communities to be able to save and borrow money but most people in these communities had no access to them. Respondents were asked if they had personal accounts where they saved their money and the results indicated a low level of saving with only 12% of women having accounts compared to 30% in men. The highest numbers of men and women with savings accounts was in Uganda while the lowest was Tanzania, even though their incomes were the highest. On average, men had held bank accounts for 5.3 years compared to 4.5 years in women. The principal reasons given for not having a bank account were that facilities were too far away or they had no money to save (Table 6).

Despite the fact that these communities have no access to formal banking institutions, they have social support groups that enable them to save money for their seasonal and short-term needs (Table 7). More women (51%) than men (31%) use these informal schemes and most respondents used them because they were run by local people, were more accessible and their rules more easily understood. They were also better able to supply women with the small amounts of money they needed at short.

Table 6. Reasons given by respondents (%) for not having bank accounts or saving money (from LVFO 2007).

Reason	Male	Female
Saving facilities too far away	41	26
Not enough money to save	38	60
Other reasons	21	14

These schemes were more prevalent in Kenya (women 79%, men 51%) and least in Tanzania (women 31%, men 22.5%). These informal saving schemes are based on group formation, and it is believed that women co-operate more with each other in groups than men do. Furthermore, microfinance institutions mostly target women's groups thus marginalising men especially the youth who do not benefit from savings and credit. On the other hand, credit institutions such as fishermen co-operatives have been known to marginalise women and crew members as membership is based on boat ownership.

Table 7. The types of saving schemes utilised by respondents (%) in the fishing communities (from 2007).

Type	Male	Female
Run by local people themselves	71	87
Run by NGO	9	7
Other financial institutions	20	6

As with most businesses, fishing communities need credit to improve their operations meet unexpected crises but access to credit in these communities is low with only 21% of boat owners, 5% of crew members and 16% women using credit. Women and the youth are further disadvantaged because they lack assets like boats or land that can be used as collateral although men often lack information on the operations of financial institutions and their credit systems.

Sources of credit included NGOs, fishermen cooperatives, microfinance institutions, relatives, fish factory agents and friends. Most women borrowed money to start a new business (42.7%) and invest in fishing activities (36.4%), while most men (74.5%) borrowed to invest in the fishery. Crew needed credit to start a new business (31%), invest in the fisheries (33%) or build a house (25%). Most men indicated that they would use credit to buy fishing gear and boats while women indicated that they would expand their fish trade business. This indicates that men and women use credit in their specialised occupational spheres there is a need for credit so that both can raise the level of their operations. Loan repayment, of course, is always a problem for many in these communities and in Kenya and Uganda women found it most difficult to service their loans while in Tanzania it was crew who experienced the greatest. This is explained by the wide income disparities between boat owners and crew in Tanzania with crew in that country being the lowest-paid. Other mechanisms for informal credit involve relations between fishermen and fish traders based on trust, where a trader may buy nets for a fisherman and he supplies fish to the trader until the loan is fully repaid.

Participation in Co-management

Everyone working in fisheries at a fish landing site on Lake Victoria must be a registered member of a BMU and only BMU members are legally entitled to fish on the lake. At first BMU membership was very low; in 2005 only 50% of fishers in Kenya were members, followed by Uganda (24%) and Tanzania (8%). There has since been a remarkable increase in BMU membership, which increased by 16% for women, 10% for boat crew (youth) and 6% for boat owners between 2007 and 2008 (Table 8).

Table 8. The proportion of respondents (%) taking part in BMU activities (from LVFO 2007 and 2008).

		2007	2008
Registration in BMU	Boat owners	90.3	95.6
	Crew	76.7	85.2
	Women	69.0	80.2
Participation by voting	Boat owners	86.0	92.3
	Crew	72.0	76.2
	Women	65.0	72.5
Attendance at BMU meetings	Boat owners	80.0	83.7
	Crew	69.6	75.8
	Women	58.6	66.3
Have a greater say in decisions	Boat owners	85.0	78.7
	Crew	64.0	88.1
	Women	49.0	70.9

There was a high level of participation in voting for the BMU executive committee although in general more men than women voted (Table 8) with the lowest proportion of women voting being recorded from Tanzania (Kenya 74.4%, Uganda 76.1% and Tanzania 67.3%) (LVFO 2008). Despite the fact that women have been voted into different positions in the BMUs men still dominate the more influential such as the Chairperson. While the BMU guidelines set out criteria for nominations, culture does plays a major role in preventing women from contending for the top positions, since cultural and religious perceptions have always placed men in leadership positions. Ironically, although women are normally relegated to lower positions some do not trust men to handle money and therefore prefer a woman to be the Treasurer – but just to keep the money safe and not make decisions over it. The lack of economic power also works against women as they cannot influence voters, unlike boat owners who are able to employ people and supply fish and are therefore much more influential. In some areas the male contenders enjoy higher-level political backing, which is not available to women. Respondents were asked if they had attended any BMU Assembly meeting in the six month prior to March 2008 and levels of attendance were generally high (Table 8). Fewer women than men attended these meetings, especially in Tanzania where only 58% indicated that they attended meetings, compared to 67.5% in Kenya and &$.2% in Uganda 74.2%.

It is now accepted that rural people and other disadvantaged groups have the right to participate in decisions affecting their lives, to realise their self-worth, and to have their opinions heard and included in the development decisions. The level of participation in decision-making followed the trend in attendance, with men having a greater say in decision-making. The level of improvement in decision making had improved by 42%

for women and by 58% for crew members and having a greater say in decision making over the fishery resources correlated with attendance levels (Table 8). Once again, women and crew in Tanzania had the say in decision making while the highest level of stakeholder participation in decision-making was reported from Kenya. Most people felt they had more say in decision-making because of their attendance at meetings (Table 9).

Table 9. Reasons given by respondents (%) for having a greater say in BMU activities (from LVFO 2008).

Reasons for greater participation	Boat Owners	Women	Boat crew
I am on the BMU Committee	19.5	11.6	5.5
I have attended Assembly meetings	37	36.2	45.3
I have spoken at Assembly meetings	22.5	16.7	15.0
The BMU Committee has asked me about my views	8.4	11.3	7.5
Our leader on the committee represent us well	4.6	5.6	12.8
Other reasons	8.0	8.1	5.9
I have no greater say		10.5	8.1

Incentives to cooperate in co-management

The incentives for governments to participate in co-management included (1) donor-driven initiatives, (2) the high cost of traditional management and limited resources for doing it, (3) poor compliance with regulations as a result of an inability to control the fishery and (4) as a means of reducing poverty. Members of the fishing communities had a variety of reasons for supporting co-management, but both men and hoped for improved fisheries management, zero tolerance of offenders, and development of landing sites. Males wanted access to savings and credit facilities, to see BMUs controlling the scales used to weigh the fish, improved welfare, financial assistance and the collection of revenue at the beach. Incentives for women included improvements in sanitation at the beach, training in business skills, and reduction in taxes and access to loans for fish traders, better fish markets, and the creation of alternative livelihoods. The crew incentives included an improvement of social facilities such as toilets at the landing sites, improved security on the lake, the curbing of illegal fishing through patrols and a reduction in conflicts.

Some of these expectations had been met to a certain extent while others have not; most respondents, in all three categories, indicated that their expectations had not been met. They attributed this to weak leadership, corruption in the BMU and Fisheries Departments, teething problems, lack of facilities for patrol, and inadequate mentorship and coordination from the Fisheries Departments.

Challenges

There of women, men and youths in making decisions on fisheries management has increased, so creating a sense of ownership of decisions and therefore improving compliance. Decisions such as the elimination of illegal fishing gears may have reduced fish catches but the price of fish has risen, having a positive impact on men, but a negative one on women because they have to purchase fish at higher prices. Women respondents indicated that it was very difficult for some of them because if one did not buy immature fish, other traders would do so. In order to adapt to change, most women revealed that they had diversified their sources of income by trading in cereals, purchasing of fish of poor quality that were , rejected by factory agents, worked as farm labourers and formed social networks to mobilise finances, while others got married ensure support from a man.

Boat crew indicated that because they had to comply with regulations even though fish catches had declined. This had various impacts, the most severe being a decline in their incomes, but they had to spend more time fishing for fewer fish, having to carry more gear in the boat and an increased workload, and a loss of employment as boat owners reduce their crews. They coped with these challenges by turning to farming, migrating to areas where there were more fish, changing the type of fish they targeted, reducing the number fishing trips, and using illegal gears.

Boat owners experienced a decline in their catches though they caught larger fish because of using the recommended gears, but their income was reduced. To deal with these problems some resorted to other activities such as farming; in Tanzania they reduced the number of boats going out on the lake and the numbers of crew but in Uganda they increased boats and used of illegal gears with only a few complying with the rules and using the right gears. Some boat owners form credit groups to provide funds for purchasing the recommended gears, but changing the target species and migrating to other beaches were also common coping strategies amongst the boat owners.

Conclusions

Community organizing is much more than just establishing organisations, it is a process of empowerment, building awareness, promoting new values and behaviour, establishing self-reliance, building relationships, developing organisations and leadership, and enabling communities to take action. Efforts to strengthen the role of BMUs should aim to promote these values and stakeholders should be able to listen to each other and take action as necessary. Fishers should also be given the right to develop their own organizations and to

form networks and coalitions for cooperation and coordination without influence from the government.

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References

Abila, R.O., C. Lwenya, K. Geheb and K. Crean (2000). An assessment of co-management potentials in the Lake Victoria fisheries of Kenya. In: K. Geheb and K. Crean (eds). The Co-management Survey: Co-managerial Perspectives for Lake Victoria Fisheries. LVFRP Technical Document 11: 136-149. Lake Victoria Fisheries Research Project, Jinja, Uganda.

Berkes, F., ed. (1989). *Common Property Resources; Ecology and Community-based Sustainable Development.* Belhaven Press, London.

IIED (1994). *Whose Eden*? *Approaches to Wildlife Management*. International Institute for Environment and Development, London.

LVFO (2007). Regional synthesis of the 2007 regional socio-economic monitoring survey of fishing communities of Lake Victoria: Lake Victoria Fisheries Organisation, Jinja, Uganda: 96 pp.

LVFO (2008). Regional synthesis of the 2008 regional socio-economic monitoring survey of fishing communities of Lake Victoria: Lake Victoria Fisheries Organisation, Jinja, Uganda.

Madanda, A. (2004). Commercialization and gender roles among Lake Victoria fishing communities. Organisation for Social Science research in East Africa, Addis Ababa [unpublished Report].

Mearns, R. (1996). Community collective action and common grazing. The case of post-socialist Mongolia. *Journal of Developmental Studies* 32: 297-339.

Nunan, F., R. Abila, C. Lwenya, K. Odonkara, P. Onyango and E. Yongo (2007). Regional Synthesis of the Socio-economics Baseline Survey of the Fishing Communities of Lake Victoria. Lake Victoria Fisheries Organisation, Jinja: 57 pp.

Odongkara K, F. Nunan, R. Abila, C. Lwenya, P. Onyango and E. Yongo (2006). Regional Trade in fish from Lake Victoria, synthesis report: 32pp.

Ostrom, E. (1990). *Governing the Commons: The Evolution of New Institutions for Collective Action*. Cambridge University Press, Cambridge.

Vedeld, T. (1992). Local institution-building and resource management in West African Sahel. Pastoral Development Network Paper No.33c: 30 pp. Overseas Development Institute, London.

Yongo E, C. Lwenya and R. Abila (2009). Report of a Survey of Fish Agents of Lake Victoria. KMFRI Socio-economics Technical Report No. 3/2009: 24pp. Kenya Marine Fisheries Research Institute, Kisumu, Kenya.