SOCIO-ECONOMIC ASPECTS OF THE FISHING COMMUNITIES OF LAKE KYOGA



SOCIO-ECONOMIC AND POLICY STATUS, CO-MANAGEMENT AND MARKETING WITHIN LAKE KYOGA FISHERIES

Introduction

The main Kyoga Lakes, namely Kyoga, Kwania and Bisina, share between them 9 districts, namely Apac, Nakasongola, Kayunga, Kamuli, Kumi, Soroti, Kaberamaido, Amolatar and Dokolo, spanning the Central, Eastern and Northern Regions of Uganda.

Findings

The region has a population of close to 3 million people, or 10% of Uganda's total population, distributed between the districts as shown in Table 1. It is a semi-arid region, with livestock keeping and crop farming being the major activities.

Table 1: Populations projections of riparian districts of the Kyoga lakes, 2008

District	Population
Apac	507,200
Nakasongola	143,600
Kayunga	330,800
Kamuli	670,000
Kumi	345,500
Soroti	499,800
Kaberamaido	168,100
Amolatar	113,700
Dokolo	159,200

UBOS 2008

The districts fall within the poor regions of Uganda. While the national poverty level was 31.1% for Uganda, poverty estimates for the Eastern and Northern Regions where most of the districts lie were 35.9% and 60.7% respectively.

Fish catch from the Kyoga lakes has continue to fall gradually in the recent years, having fallen drastically from the all time high of 100,000 tonnes in the 1970s, when they were the most productive water bodies in the country. Presently, the Kyoga lakes contribute about 16% of Uganda's total fish catch (Table 2).

Table 2: Fish catch from Lake Kyoga ('000 Tonnes)

Year	Lake Kyoga	Total, Uganda	Proportion of L. Kyoga catch to Total
2003	32.9	247.0	13.3%
2004	68.5	434.8	15.8%
2005	68.4	416.8	16.4%
2006	60.0	367.2	16.3%
2007	60.0	374.3	16.0%

Source: UBOS 2008

The objective of this paper is to provide information on the following:

i) The demographic and socio-economic characteristics of the fisheries

ii) Development of co-management

iii) Policy implementation and impacts

iv) Fish marketing

DEMOGRAPHIC AND SOCIO-ECONOMIC CHARACTERISTICS OF THE FISHING COMMUNITIES

Demographic characteristics

A survey by NaFIRRI of the socio-economic conditions of the fishing communities of the Kyoga lakes in 2008 characterised the people involved in the fisheries within the different riparian districts. The key findings are summarized in Table 3.

Table 3: Demographic characteristics of the fishing communities

Attributes	**Key findings**
Respondents' sex	90.5% Males
Respondents' tribe	Langi (24.8%), Itesot (21%), Basoga

	(13.8%)
Where respondents were born	Mostly from other districts (46.5%)
Age of respondents	Mean of 35.4 years
Educational levels	Incomplete Primary (34.8%)
Literacy levels	Mostly able to read and write English (43.6%)
Marital status	85.9% married
Main fishery activity	Owning or renting-in of boats (48.4%)
Main fish species targeted	Tilapia (70.2%)
Main threat to fishery activities	Fish scarcity (38.5%)
Response to threats	Abide by fisheries regulations (64.7%)
Migration from one landing to another	Majority (79.1%) did not move in 2007
Reasons for migration for those who did	Fish scarcity (92.6%)

Source: NaFIRRI, 2009

The data reveals that the fisheries are dominated by males of different tribes of middle age with incomplete primary education but most of them able to read and write in English. The majority own or rent boats, which they equip with the relevant fishing gear, targeting mainly tilapia. Although their operations are threatened by the prolonged fish scarcity, their migrations from one landing site to another have been reduced.

Boat owners

Information on the boats and gear owned is provided in Table 4. the table reveals that most fishers own the parachute type of boat, with an average of 2 per person, at an average cost of Shs 192,378. Others own ssese boats, which much more expensive to acquire. Ordinary gillnets are the most commonly used gear, with an average of 44 nets per fisher, costing an average of Shs 8,900. Other common gear types include seines and monofilament nets.

Table 4: Mean number of boats owned and average costs

	N	Mean number	Average cost (Shs)
Number of ssese boats	97	1.5	332,578
Number of parachute boats	107	2.0	192,378
Number of gillnets	142	44.0	8,980
Number of mosquito seines	25	1.9	115,600
Number of monofilament	16	9.2	71,937

Source: NaFIRRI, 2009

Seasonal fluctuations characterize the fishing activities, with the months of May to August regarded as the period of low fish catch. The best catches are reported within October and November, but the period is quite short. Marked differences are observed in the catches of the main fish species between the low and high seasons. However,

price differences are rather low, except for mukene, mainly because fish prices are already quite high.

Table 5: Catches and prices of main species during low and high catch seasons

		Low season		High season	
Species	N	Mean	Price (Shs)	Mean	Price (Shs)
Nile perch catches (kg)	39	32.9	1,687	96.2	1,666
Tilapia catches (kg)	101	43.3	1,501	119.9	1,561
Tilapia catches (head)	38	51.1	1,032	149.6	660
Mukene catches (basin)	25	8.9	7,180	25.2	6,442

Source: NaFIRRI, 2009

Boat crew

Boat crew form the largest single occupation group in the fisheries of the Kyoga lakes. The majority works on a percentage share payment system, but a few also are on fixed wage system (Table 6). Crew on fixed wage payment system earn an average of nearly Shs 15,000 per week.

Table 6: Information on crew working conditions

Aspects	**Findings**
Payment system for crew for work on the boats	Percentage share (90.9%)
Years crew have worked	5.9
Days crew fish per week	4.0
Weekly payment to crew on fixed wage system	Shs14,944
Proportion to crew on percentage share system	36.9%

Source: NaFIRRI, 2009

FISH MARKETING ON LAKE KYOGA

INTRODUCTION

The marketing of fish in Uganda takes place through a series of stages and a wide variety of sites. Usually the primary stage occurs at landing sites, when canoes return from the fishing grounds and discharge their catches to waiting traders, processors, and consumers.

Increased consumption of fish and the attendant growth in the complexity of supply chains has highlighted the symbiotic relationship between fishery management decisions, market conditions and events in markets. Major concerns that traders raise relate to inadequate government services and procedures in revenue collection. Because of this, and many other factors, fish losses are frequently experienced on the domestic market, and fish traders face competition with processing plants over supply which later on reduces their earnings. Low purchasing power among consumers, inadequate information about the market and lack of financial services for their activities were other constraints to traders.

KEY FINDINGS

Fish Processing and Trading

Fish marketing around Lake kyoga is based largely on activities of small scale traders and processors. These operate between landing sites, markets and urban centers. Transactions between trader and consumer are conducted on a relatively unrestricted, willing-seller/willing-buyer basis. A survey conducted around Lake Kyoga revealed that most processors and traders (41.8%) dealt in smoked products, (38.2%) dealt in fresh products and only (10.9%) were involved in salted products.

Table 1 showing fish form processed/traded

Fish product	Frequency	Percentage (%)
Fresh	21	38.2
Smoked	23	41.2
Sun- Dried	3	5.5
Salted	6	10.9
Fried	2	3.6
Totals	**55**	**100.0**

Source: Survey data 2008

Traders where asked to provide information about where they got fish from. Results indicate that most traders and processors (79.2%) bought their fish from fishermen. However (17.0%) of the respondents had their supplies from their own fishing boats and nets. In the fisheries, it is becoming common for boat/gear owners to also deal in fish trading activities which perhaps helps them to maximize incomes from their fisheries activities.

Table 2 showing where fish was bought from

	Frequency	Percentage (%)
Fishermen	42	79.2
Processors	1	1.9
Other Traders	1	1.9
Other(Own)	9	17.0
Totals	**53**	**100.0**

Source: Survey data 2008

Information was also generated to obtain an indication and magnitude of the weekly operations of the fish processors and traders and the prices at which they sold their products. Nile perch and tilapia where the most processed/ traded species both in volume and value. Most of the processors owned only one smoking kiln which cost an average amount of shs. 36,437. Table 3 below gives a summary of the quantities and prices of fish handled weekly.

Table 3 showing Quantities and Prices of fish handled weekly.

Fish Species	Avg Qty traded/processed	Price per unit (Shs)	Avg weekly Gross income
Nile perch (kgs)	1,170	3,202	3,746,340

Tilapia (kgs)	758	3,123	2,367,234
Mukene (basins)	28	5,052	141,456
Others	6	2,250	13,500

Source: Survey data 2008

Most (54.3%) of the processors stored their fish in the houses where they were staying. (31.4%) had separate stores/rooms which they were using to store fish and only (5.7%) were using beach/ market stores. Facilities like stores are generally lacking around Lake Kyoga.

Table 4 showing where fish was stored.

	Frequency	**Percentage (%)**
In the House	11	54.3
Separate Room	19	31.4
Beach/market Store	2	5.7
Others	3	8.6
Totals	**35**	**100.0**

Source: Survey data 2008

Information on the main buyers of fish is provided in the table below. Data reveals that most boat owners sold their fish to local traders (66.5%) and to direct consumers (12.6%). For crew members, the main buyers were still local traders (78.3%). Fish processors most sold their fish to local traders (37.5%) and regional traders (37.5%). However, (12.5%) of the fish processors sold their fish to industrial who specifically bought mukene. Fish traders specifically middlemen mostly sold fish to fellow local traders (42.9) and direct consumers (34.3%).

Table 5 showing major buyers of fish.

Suppliers	**Main Buyers Fish**					
	Direct Consumers	**Local Traders**	**Artisanal/ Processors**	**Factory agents/Industrial**	**Regional Traders**	**Total**
Boat Owner/Renter	12.6	66.5		8.9	12.0	100.0
Crew Member	14.0	78.3	1.4	5.6	.7	100.0
Fish Processor	12.5	37.5		12.5	37.5	100.0
Fish Trader	34.3	42.9		5.7	17.1	100.0

Source: Survey data 2008

Most traders/ processors (65.8%) sold their fish at beach markets, (15.8%) sold fish in other districts. The marketing of fish in Uganda takes place through a series of stages and a wide variety of sites. Usually the primary stage occurs at landing sites, when canoes return from the fishing grounds and discharge their catches to waiting traders, processors, and consumers. In recent times, traders have also been seen operating on the Lake buying fish before it is landed.

Table 6 showing where fish was sold from

	Frequency	Percentage (%)
Beach market	229	65.8
Local market not at the beach	39	11.2
Another district	55	15.8
Regional market	22	6.3
Others	3	0.9
Total	348	100.0

Source: Survey data 2008

Different categories of traders used different means of transport in fish trade and distribute some of which included bicycle traders who were mostly men, retailers at beaches who were mainly women who specialized in Tilapia fish species, vehicle traders (refrigerated), pick-up traders, middlemen who dealt in Nile perch and a few women were involved in the Mukene fish trade. Data showed that (35.8%) used hired trucks, (21.2%) used bicycles and only (15.6%) used public vehicles as means of transport to market fish. See the Table below. As to the destinations of the different fish products, smoked products are mainly consumed in Uganda, Kenya and Rwanda while sun dried salted products are mostly sold in DRC and Southern Sudan.

Table 7 showing means of transport used to market fish

	Frequency	**Percentage (%)**
Bicycle	38	21.2
Motorcycle	6	3.4
Public Vehicle	28	15.6
Own Vehicle	4	2.2
Hired Truck	64	35.8
Boat	38	21.2
Others	1	0.6
Total	**179**	**100.0**

Source: Survey data 2008

Sustainability of the market outlets was another area of investigation. Respondents were asked to comment on stability of the market, demand for fish and prices where they sold fish. Results showed that (57.1%) of the respondents reported that the market was stable while (42.9%) said that the market was seasonal. Respondents (75.1%) reported that there is high demand for fish on the market while only (6.0%) said that the demand was low. Results also show that (37.2%) of the respondents believed that the prices of fish were high while (31.9%) though it was low. DCI, (2008) also reported that all outlets of the various incomes sources/ activities were sustainable but recommended that there should be diversification to reduce on the risk of livelihood failure by spreading it across more than one income source.

Table 8 showing Market Stability, Demand and Price Performance

	Market Stability	**Demand**	**Price**
Stable	57.1		
Seasonal	42.9		
High		75.1	37.2
Medium		18.9	30.9
Low		6.0	31.9
Totals	**100.0**	**100.0**	**100.0**

Source: Survey data 2008

In regard to limitations in marketing fish, traders/ processors reported that their limitation was in relation to the low fish prices offered by the final consumers of the fish products (38.8%) and the stringent fisheries regulations (25.6%). Other factors include scarcity of fish and the poor demand due to low purchasing power among consumers, poor marketing infrastructure and post harvest losses. Discussion also revealed that traders often operated under threats and insecurity due to corruption and intimidation by tax collectors, health inspectors and fisheries officials, mean while Government policies on marketing laid emphasis on improving the physical provisions for marketing, with a focus for the external market.

Table 9 showing factors limiting marketing of fish on Lake Kyoga

	Frequency	Percentage (%)
Low Demand	22	6.9
Low Fish price	124	38.8
Inadequate funds	74	23.1
Stringent Fisheries Regulations	82	25.6
High Taxes	1	0.3
Others	17	5.3
	320	100.0

Source: Survey data 2008

Information regarding the average incomes from the different categories of the respondents was generated and analyzed. Results show that majority of the respondents in the different categories were in the range of Uganda shillings 10,001-100,000. These results suggest that probably a larger percentage of traders live above the poverty line. The percentages within the different categories are shown in the table below.

Table 10 showing Average weekly incomes of the different categories

	Income Ranges (%)				
	1000-5000 shs	**5001-10000 shs**	**10001-100000 shs**	**100001-500000 shs**	**Total**
Own or rent Boat	6.8%	9.4%	61.3%	22.5%	100.0
Crew member	16.5%	25.2%	56.8%	1.4%	100.0
Fish Processor	25.0%	12.5%	62.5%		100.0
Fish Trader	3.0%	12.1%	66.7%	18.2%	100.0
Total	**10.5%**	**15.6%**	**60.1%**	**13.7%**	**100.0**

Source: Survey data 2008

ASSESSMENT OF THE IMPACT OF CO-MANAGEMENT ON LAKE KYOGA FISHER COMMUNITIES

1.0. Introduction

Over the last two decades, fisheries development programs have increasingly supported the principle that fisher folk and other relevant fisheries stakeholders should be involved in decision-making over fishery resource management. In effect, Co-management was established under the Fish (BMU) Act 2003 and the National Fisheries Policy 2004. The objective was to improve fishers' livelihoods through improved planning and resource management, good governance, democratic participation and self reliance.

The Statutory Instrument, the Fish (Beach Management) Rules 2003, provides legal empowerment of Beach Management Units (BMU) for fisheries planning and management in partnership with Local Governments. The new law and its accompanying national Guidelines for Beach Management Units in Uganda, 2003 set out the roles and responsibilities of BMUs and their committees, in a range of areas. Some of the roles of the BMUs are resolving disputes, receiving visitors and arresting offenders. Others are conducting meetings, formulating by-laws, keeping inventories, confiscating illegal gears, prosecuting offenders, planning activities and patrolling fishing grounds. Since policy inception in 2003, a number of BMUs have been formed on Lake Kyoga. One of the major objectives of this study was to examine BMUs levels of efficiency and effectiveness in service delivery, the resources available to them and the challenges that they face in pursuit of their duties.

The methodology involved the use of unit questionnaires with fishers, fish traders and processors and other local fisheries stakeholders based at landing sites. Key Informant Interviews were also held with Fisheries Officials and BMUs executives. Available Secondary data was also reviewed.

2.0. Main Findings

2.1. BMU Membership and Elections

The study showed that most fishers (69.7%) were registered in their BMUs at the different landing sites. However, a significant number of 30.3% was not registered. It's a requirement that all fishers at a particular landing site must be registered in order to be allowed to carry out fishing. Not being registered should automatically make them not to be allowed to fish or do any fishery related activity. It shows also the extent of laxity of BMU executives because 30% of a sample of more than 400 fishers was a big number to do fishing without being registered. It means that the BMUs were not strict on this matter. Recent studies have showed that failure to register with BMUs is partly due to the fact that such fishers who are not registered are engaged in mainly illegal fisheries related activities.

Most of the fishers (83.0%), voted in the BMU elections. This means that even those who were not registered voted which was also illegal as the number of people who voted exceeded that of those who were registered by the BMUs.

Table 1: BMU registered respondents and those who voted in BMU elections

Response	Number of Respondents Registered by the BMU		Number of respondents who voted in BMU elections	
	Frequency	Percent	Frequency	Percent
Yes	287	69.7	337	83.0
No	125	30.3	69	17.0
Total	412	100.0	406	100.0

Source: Survey data, 2009

Fishers were also asked their expectations of the BMUs would do and most (60.5%) expected BMUs to fight illegal fishing at the landing sites. The other major expectations were those of improving sanitation and resolving conflicts of landing site communities.

Table 2: Fishers expectations of BMUs

Expectations	Frequency	Percentage
Improve sanitation at beach	98	21.3
Fighting illegal fishing	279	60.5
Resolving Conflicts at beach	49	10.6
Improving fisheries marketing	17	3.7
Others	18	3.9
Total	461	100.0

Source: Survey data, 2009

2.2. BMU Meetings and Activities

Majority of the fishers (68.7%) reported to have attended a BMU assembly meeting in the last six months. A significant number though had not. It is in such meetings that issues related to BMU roles, fisheries management and other relevant issues were discussed. Failure to attend such meetings may make one miss out on very important information that can help in the management of the fisheries and the landing sites. Lack of knowledge of the pertinent issues discussed in meetings was therefore likely to increase the susceptibility of breaking fisheries related other crucial rules and greatly increased the chances of inflicting fisheries resources.

The main issue discussed in meetings was illegal fishing on the lake (79.7%). This was followed by sanitation issues for the landing site. Other pertinent issues which however, scored low were developing work plans, by-law development among others.

Reasons why some people did not attend meetings were also assessed where majority (45.3%) did not know that there was any meeting that took place during the previous six months. This was partly due to less publicity of meetings and being absent during meeting days.

Respondents were also asked what their BMUs had done since they were instituted. Most respondents reported that their BMUs had mainly enforced fisheries rules (23.2%), sensitized fishers (22.6%), resolved conflicts (17.0%) and improved sanitation at landing sites (15.6%). *Also see table 4 for details.*

Most respondents also reported to have been involved in some BMU activities. However, the dominant activity that they got involved in was attending Meetings (43.3%), followed by ensuring sanitation at beaches (28.3%). The other activities which however, scored low were making plans (13.6%) and patrolling the lake (14.8%).

Table 3: What BMUs had done

What BMUs had done	Frequency	Percentage
Enforced fisheries rules and regulations	286	23.2
Improved sanitation at beach	192	15.6
Resolved conflicts	209	17.0
Developed beach infrastructure	134	10.9
Undertook planning and monitoring	132	10.7
Sensitization of fishers	278	22.6
Total	1231	100.0

Source: Survey data, 2009

2.3. BMU Revenues

Most respondents (69.7%) knew that their BMUs collected revenues. 75.6% however, did not know whether their BMUs had bank accounts. The main revenues collected were one head of fish/a container of fresh dagaa (approximately 3kgs) (50.0%), fish Movement permits (11.6%), boat levies (19.7%) and money in cash. Others included fines especially of wrong doing and registration fees.

However, a significant number of respondents did not know what the revenues were used for (46.0%). Otherwise 19.2% reported that it was used on BMU emergencies, 15.2% that it was used on construction of BMU facilities and 10.9% said it was spent on sanitation activities. Others also said that it was used on patrol activities whereas 4.3% reported that the collected revenues were taken to the sub county headquarters.

Table 4: Knowledge of what happened to collected revenues

Usage of revenues	Frequency	Percentage
Spending on BMU emergencies	58	19.2
Construction of BMU facilities	46	15.2
Expenditure on sanitation	33	10.9
Don't Know	139	46.0
Taken to Sub County	13	4.3
Used for patrols	4	1.3
Others	9	3.0
Total	302	100.0

Source: Survey data, 2009

2.4. Challenges/Problems and Support to BMUs

Most of the respondents (86.8%) reported that their BMUs faced challenges in doing their work. 59.9% of the respondents also said that there were conflicts in the BMU. The main challenges highlighted were resistance from fishers (44.1%), inadequate funds (32.0%) and conflicts between BMUs and other fisheries stakeholders like LG officials. Most fishers (77.8%) reported that they were not aware of any support from LG or politicians to their BMUs that could have helped to deal with some of the challenges. The few who reported that BMUs had got support from LGs and other politicians cited that it was in form of security (39.2%) for example provision of an armed person to escort those who are going to patrol the lake and funds/facilitation (33.8%). The others were fuel and boat for patrolling (8.1%), 25% remittance from LG and provision of sensitization services to the fishers among others.

Table 5: Challenges of BMUs

Problem/Challenge	Frequency	Percentage
Inadequate funds	221	32.0
Resistance form fishers	304	44.1
Conflicts between BMU and other stakeholders	154	22.3
others	11	1.6
Total	690	100.0

Source: Survey data, 2009

2.5. Training Received under BMUs

Most of the respondents (71.8%) reported that they had received training under their BMUs. A significant number however, reported not have received any training. The training received was mainly in areas of fisheries management (32.1%), how a BMU

should operate (22.2%), financial management (16.5%) and developing by-laws (15.2%). *See table 5 below for details*. Training to fishers is very important because they acquire knowledge that can make them able to understand and comply with fisheries management and issues that concern their daily lives.

Table 6: Challenges of BMUs

Type of Training	Frequency	Percentage
How a BMU should operate	70	22.2
Financial Management	52	16.5
Fisheries Management	101	32.1
Planning	44	14.0
Developing by-laws	48	15.2
Total	315	100.0

Source: Survey data, 2009

Recommendations

1. There is therefore need for sensitization of BMUs to ensure that they have all fishers on landings registered and that failure to register should attract a penalty for example not being allowed to fish, not being allowed to vote during BMU elections among others.

2. This calls for effective and efficient publicity on the part of BMU executives of the BMU assembly meetings.

3. This calls for a need to sensitize the fishers on their right to know how revenues collected by the BMUs are used as well as to put pressure on the BMU executives to ensure that they are transparent in accountabilities.

4. This calls for government and other fisheries stakeholders to ensure that measures aimed at alleviating these challenges for example sourcing funds, increasing sensitization to fishers among others are done.

5. There is however, need to improve the frequency of such trainings to ensure that fishers are well equipped with the knowledge of to better their lives and to boost fisheries management.

6. **There is need for continuous monitoring research to assess BMU performance. This will continually help to yield data that can help in generating information to base on for improving their performance.**

Consumption and how fishers spend their earnings

Studies have examined feeding patterns among the fishing communities and utilization of fishery earnings between the different options a summarized in Table 7. The data reveals that the households are generally adequately fed, having 2.4 meals per day on average. However, their diet could be better balanced as it focuses too much on starchy food, namely cassava, with some potatoes and posho. Households

reported having sufficient food supply during most months of the year, except during March to June.

Food is the main expenditure item for the fishers. The majority have adequate sleeping facility using beds and mattresses but most still cook using firewood, which is detrimental to the environment.

Table 7: Feeding, sleeping and cooking provisions for fishers

Aspects	**Findings**
Usual number of meals eaten in households in a day	2.4
Most common types of food eaten in households	Cassava (50%), potatoes (23.3%), posho (12.9%)
Months of less than sufficient food for family	March – June
The main expenditure items for the households	Food (59.6%), education (23.4%), health care (6.8%)
Sleeping facilities	Bed and mattress (62.8%), papyrus mat (20.7%)
Fuel for cooking	Firewood (73.4%), charcoal (24.9%)

Source: NaFIRRI, 2009

Asset ownership

Asset ownership among fishers has been examined. Assets represent wealth for an individual, household or community and productive assets generate income for the owners. The assets most commonly owned by the fishing communities are radios, bicycles, land and semi-permanent houses (Table 8). Other assets owned by fishing communities but reflected elsewhere include boats, gear, fish processing facilities and livestock, all of which should be taken in consideration.

Table 8: Average number of assets owned and unit values

	N	Mean	Unit value (Shs)
Number permanent house	49	1.1	5,866,595
Number semi-permanent house	143	1.4	779,275
Number vehicle	2	2.0	7,500,000
Land (acres)	164	6.8	1,233,958
Number Bicycle	233	1.2	84,489
Number radio	256	1.1	37,003
Number motor-cycle	6	1.0	1,766,666

Source: NaFIRRI, 2009

Access to social services

The quality of life of the fishing communities depends on their access to facilities and social services. Among the essential facilities, most of the fishers have access to clean water source, namely the borehole, and a latrine at home. However, significant proportions still depends on the lake water for drinking or go to the bush for their convenience calls (Table 9). Malaria has remained among the main diseases, as is the case nationally.

Table 9: Facilities, social services and diseases

Aspects	Findings
The main sources of drinking water	Borehole (68.4%), lake water (26.8%)
Respondents with a latrine at the house where they stay	69.7%
Where the other respondents go	In the bush (73.8%), public toilet (23.8%)
Where household members normally go when sick	Public health facilities (51.0%), private health facilities (48.8%)
Diseases reported by most households	Malaria (96.8%), diarrhea (62.5%), typhoid (39.4%)

Source: NaFIRRI, 2009

Information

Information is essential for effective communication and facilitates participation of the community. Examination of the different methods of information dissemination revealed meetings/baraaza (62.6), followed by radio (35.7%) were the most preferred methods of receiving fisheries information by fishers. The danger with verbal information is that it is hard to keep and it is often distorted.

Some 60.1% of the respondents also reported having access to mobile phones, which they used mainly to keep in touch with home (57.9%), to find out about fish price (28.5%) and to support their alternative income activities outside fisheries (6.8%).

Investment and credit

Selected information on investment levels and sources are summarized in Table 10. the data reveals low levels of investment, poor sources of capital and limited use of banking facilities, including access to credit. The implications of low investments is that the fisheries would be unable to grow, particular with such activities as value addition, which require considerable investments.

Table 10: Investments, savings and credit in fisheries

Aspects	Findings
Mean value of individual investment in fishery activities	Shs 1,422,598
Main sources of capital	Own savings (74.7%), farming/livestock (11.5%), loans (7.1%)
Where fishers keep money from fishing business	In the house (81.1%), bank/MFIs (15.8)
Fishers belonging to a saving scheme at this beach	18.3%

Source: NaFIRRI, 2009

Income opportunities from fisheries and alternative activities

Fisheries are still the main source of income for the fishing communities, contributing 66.7% of the households' incomes. However, most respondents on the study (64.4%) reported that income from fishery activities decreased over the last year. The main reasons for the decrease in income were less fish availability (52.1%) and stringent fisheries management measures exercised by the enforcement authorities (20.8%).

In response to this, many fishers are already looking to alternative activities to support their household incomes. The most common of these are crop farming and livestock keeping (Table 11).

Table 11: Respondents participating in alternative income activities

	Frequency	Percent
Non fishing employment income	27	14.4%
Trading in commodities income	29	14.2%
Crop farming income	260	88.1%
Livestock farming income	167	64.0%
Bee keeping income	5	2.7%
Brick making income	7	3.8%
Sand mining income	1	0.6%
Skilled trade income	5	3.2%
Rent from properties income	7	6.0%

Source: NaFIRRI, 2009

Among the few people who managed to break out of fishing and take up paid non-fishing employment, most hae gone into the private sector(97.2%). The sector offering employment to most of them is farming (82.3%), followed by the service (16.7%) and others.

The range of crops and the magnitudes of the farming that the fishers are participating in have been examined and are summarized in Table 12. The table reveals that the majority are engaged in growing cassava, potatoes and maize, among other crops. The plots for the crops are small, averaging about one acre, except for rice and cotton. This sows that these alternative activities are primarily for subsistence rather than income generation.

Table 12: Range and acreage of crops cultivated

	N	Mean
Acres matooke	10	1.4
Acres coffee	8	1.1
Acres maize	167	1.4
Acres beans	93	0.9
Acres sorghum	73	1.0
Acres millet	109	1.0
Acres rice	5	3.5
Acres groundnuts	69	1.4
Acres cotton	25	2.4
Acres cowpeas	19	1.0
Acres cassava	204	1.3
Acres potatoes	172	1.1
Acres simsim	52	1.3

Source: NaFIRRI, 2009

Fishers are also involved in livestock keeping as a source of wealth and to diversify their incomes, as indicated in Table 13. The data reveals that most respondents keep goats, followed by cattle.

Table 13: Livestock ownership among fishers

	N	Number	Unit value
Number of cattle	196	7.5	364,430
Number of goats	223	6.1	42,869
Number of sheep	44	4.5	44,722
Number of pigs	52	2.6	60,000

Source: NaFIRRI, 2009

Access to technology

The studies examined access to technologies in the forms of new methods, new tools or new information among fishers on the Kyoga lakes. The information shows that small proportions of fishers have accessed the different types of technologies (Table 14). The implication of this is that without access and adoption of new technologies, the sector will not experience rapid growth, especially in the areas of quality assurance, value addition and post harvest loss minimization.

Table 14: Technologies accessed by fishers

	Training on new methods	New tool	New information
Boats and gears owners	25.7%	20.9%	40.0%
Fishing labourers	12.6%	7.1%	21.3%
Fish processors and traders	32.7%	27.1%	36.0%
net makers and repairers	31.6%	23.5%	23.5%
Boat builders and repairers	35.3%	23.5%	29.4%

Source: NaFIRRI, 2009