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Socioeconomic Survey of Fishing Villages in the Buffer Zone of Lake Mburo National Park

by

Agrippinah Namara
Makerere Institute of Social Research

ACCESS TO LAND AND OTHER NATURAL RESOURCES IN UGANDA: RESEARCH AND POLICY DEVELOPMENT PROJECT

Research Paper 15

Prepared for Makerere Institute of Social Research and the Land Tenure Center

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EXECUTIVE SUMMARY

This report is about the Rwonyo and Rukukuuru fishing communities on Lake Mburo and Lake Kachera, respectively. The two villages were non-randomly selected in a socioeconomic survey carried out in 1991 in the buffer zone of Lake Mburo National Park by the Lake Mburo Community Conservation Project and the Makerere Institute of Social Research. The villages were included in a sample that totalled ten enumeration areas because of the significance of fishing as an economic activity in the in the area and also because of the distinct characteristics of the fishing community vis-à-vis the other communities. It was deemed necessary to analyse the fishing community separately; however only those attributes of the community that bring out its peculiarities as compared to the other communities will be analysed.

The survey reveals that fishing as an economic activity is not a year-round activity; it varies with the seasons. The main economic activities of the communities were farming (44.3%), fishing (39.3%), and other activities (16.4%), which included trading, sale of local brew, etc. For those for whom fishing was a major economic activity, fish sales accounted for 83.3% of primary income and 8.3% of secondary income. For all the sampled individuals, fish sales accounted for 44.3% of primary income. Other income sources included crop sales (32.8%), trading (11.5%), local brew sale (8.2), and charcoal sale (3.3%).

Probably due to the labour demands of the fishing activity and the capital investment required, fishing here was male dominated. Because of the location of the landing sites in remote and sparsely populated areas (within the national park in the case of Rwonyo), few women were resident at the sites. The women mainly provided services such as sale of food and drinks; a few were employed to clean fish.

Persistent decline in the fish catch did not seem to be a problem for the people at Rwonyo as it was for the Rukukuuru community. This was attributed to illegal fishing, which was rampant on Lake Kachera while fishing on Lake Mburo was more controlled since the lake is within the national park.

Because of poor roads, the fish from Rwonyo was smoked. The fuelwood used was procured from the national park either by authorised individuals or by the smokers themselves. Fish from Rukukuuru was almost always sold fresh because the distances to the Rakai markets were shorter either by canoe or bicycle. Bicycles were the primary mode of transport. Markets were Mbarara town, Lyantonde town, and, at times, Masaka town.

Poor social infrastructure and human injury were the main problems the community said they faced. These problems are a result of the remote locations of the villages. Development of infrastructure was highlighted as a concern of the majority. Government help was sought as a remedy because the people alone could not meet the capital requirements involved.

The fishing community's attitude towards the park and conservation was more positive than the attitudes of the non-fishing community mainly because the former was not affected by the most prevalent problems associated with the park (landlessness, lack of water and pasture, and

crop damage) since most in the community had homes relatively distant from the park. However, the location of Rwonyo landing site within the park and the control that park management exercised over the site and the fishing activity may have led to the highly positive attitudes of the people because they felt obliged to display positive attitudes in order to maintain good relations with the park officials. Rwonyo residents turned out to be more positive to the park and conservation than Rukukuuru residents ($p=0.43841$), while the fishing community on the whole were more positive than the non-fishing community ($p=0.05892$).

Attitudes towards the park seem to be influenced by, among other factors, the experiences of injury by wildlife, education and age. However, as was noted in the main report on the same survey (Marquardt, Infield, and Namara 1994), negative attitudes are mainly against the park status and management style and not against conservation as a concept. It is crucial that park management ensure that benefits flow to the community from the park to justify its existence and counterbalance the problems; also, there is need to change the park management style to suit the people's expectations.

This separate analysis has revealed that the fishing community is not dramatically different from the non-fishing communities in many aspects. Therefore, the park's main community conservation programs need not treat them as different. However, the peculiarities of this community arising from the nature of their work necessitate specific sub-programs that address their specific issues, just as the cultivators and pastoralists all need specific sub-programs. Indeed, there is need to have this group of people appreciate the park since their location within/near the park means they have a potential to directly affect it.

I. INTRODUCTION

This report presents part of the results of the social economic survey carried out jointly by the Lake Mburo Community Conservation Project (LMCCP) and Makerere Institute of Social Research (MISR). Results presented here concern the two fishing communities, which were non-randomly selected, in addition to the eight randomly selected villages, in order to include this distinct strata of people involved in the fishing industry in our sample. These are Rwonyo and Rukukuuru fish landing sites on Lake Mburo and Lake Kachera respectively. Their inclusion was essential because fishing is a major economic activity in and around Lake Mburo National Park (LMNP). Fishing is on Lake Mburo within the park and on Lake Kachera and other lakes south of LMNP. People in this industry have a distinct socioeconomic profile and distinct problems and perceptions of natural resource conservation and the park.

Fish landing villages are considered distinct from other sampled enumeration areas (EAs). Rwonyo Fish Landing, in particular, should be viewed as exceptional because of its location inside the park and the subsequent degree of control that park authorities exercise over its inhabitants.

The distinct characteristics of the two sites thus necessitated separate analysis. Because of the tendency of respondents to mix up information from the home areas and the fish landing, less emphasis will be placed on information related to household origin, cultivation, livestock, soil fertility, and soil conservation. Detailed analysis of these aspects has been carried out in the first report of this survey (see Marquardt, Infield, Namara 1994). The survey results of these aspects are similar for the fishing and non-fishing communities. In this report, emphasis will be placed on those aspects that bring out peculiarities of the fishing communities. Thus the development, conservation, landownership, fishing, and attitude towards the park and conservation sections of our survey will be discussed in this report.

LMCCP was developed in 1989 by the Uganda National Parks and the African Wildlife Foundation's "Protected Areas: Neighbours as Partners" program in Uganda in response to what was perceived as a crisis in the conservation status of LMNP. The project stressed the need to work with local communities to alter the apparently negative attitudes local people held toward the park.

Socioeconomic research was seen as an important step in identifying and planning effective interventions. It was felt necessary to understand the local economy, the people's relationship to the land and natural resources, their perceptions of needs and problems, and their attitudes toward conservation and wildlife. Baseline data also was necessary for monitoring the impact of the project on socioeconomic variables significant to the status of the park.

The socioeconomic survey was carried out among communities most directly affected by LMNP and undertaken as a joint effort of LMCCP and the Land Access Project; Buffer Zone Research Program at MISR.

The goal of LMCCP was to create a more positive attitude towards LMNP among local communities by strengthening understanding of the values of the park and developing a perception that it can bring economic benefits. The survey was thus intended to determine peoples' ideas and perceptions about their use of natural resources, determine their attitudes toward conservation and the park, and identify their concerns and problems with wildlife.

MISR's objective was to gather a body of data that will provide a basis for understanding the issues surrounding resource access and use in the buffer zones surrounding protected areas in Uganda. This data will improve management systems for resource allocation in these areas and lead to the formulation of appropriate government policies concerning them.

The study population was located entirely within Mbarara District and fell within the counties of Nyabushozi, Kashari, Isingiro, and Bukanga. The study area for the socioeconomic survey comprised all parishes located within approximately 10 kilometres of the boundary of LMNP. This was selected as the approximate distance over which it was assumed that communities might be directly affected by the park and have the capacity to directly affect the park. It also was assumed that knowledge of and interest in the park would decrease with increased distance from park boundaries.

Eight EAs were randomly selected from a list of EAs as defined by the 1990 National Population and Housing Census. Data analysis of these eight has already been presented (see Marquardt, Infield, Namara 1994). Two fishing communities were non-randomly selected.

II. METHODOLOGY

As a preliminary to this more detailed study, a Rapid Rural Appraisal (RRA) was conducted in the communities living in and around the park. The purpose of the RRA was to gain a general understanding of the neighbouring communities, the main issues concerning the park's relationship with these communities, and any factors over which there was confusion and lack of understanding. A second objective of the RRA was to identify key issues and problems to aid in the design of a detailed questionnaire for the later socioeconomic survey. A report on the results of the RRA was presented earlier (Infield, Namara, and Marquardt 1993).

A. QUESTIONNAIRE DESIGN

The results of the RRA enabled the project to design a detailed questionnaire that targeted issues and questions raised by the RRA. The questionnaire was carefully reviewed and the wording, intent, and implications of each question discussed in detail. A series of questions was formulated to cover the main fields of interest.

The questionnaire was designed to collect three types of data:

- biographical data, including demographic data on households, social and geographical background of households and/or individuals, and socioeconomic data, including landownership, land tenure, and main economic activities;
- respondents' knowledge and attitudes to natural resource conservation, specifically soil and pastures; and
- attitudes towards and knowledge of LMNP and the idea of conservation in general.

The formal questionnaire interview was administered to heads of randomly selected households.

B. FIELD RESEARCH METHODS

The field research activity was broken into two components. The first was a formal questionnaire interview administered to the household heads or the most senior member of the household present. This was supported by an informal data collection method involving informal interviews of key informants, which included elders, leaders, and other prominent members of the community. This informal data was primarily used in the description of the study sites, part of which is in this report.

C. PROBLEMS ENCOUNTERED DURING THE SURVEY

As is the case in many social research projects, it was difficult to gain the trust of the communities. Inevitably, suspicion arose concerning the reason for the survey and the use to which the collected data will be put. This was particularly the case in the areas around LMNP, given the history of the park's formation and the effects it has had on the surrounding communities. The mere sighting of the vehicle used in the survey which had the LMCCP logo sent news around the village that the "park people are around." This may have resulted in general reluctance to give genuine opinions about the park. There seemed to be an automatic

assumption that the team supported the existence of the park and the concept of conservation. Questions dealing with these issues may have received more positive answers than were actually felt. Comments made by members of the communities during informal discussions with individuals of the team sometimes contradicted the attitudes of the community indicated during the formal questionnaire interviews.

The time available for the survey (three months) coupled with the size of the study area meant that only about five days was spent in each EA. This was not sufficient time to build a relationship of trust between the team and the community. The resulting suspicion at times brought forth many "No response" and "Don't knows" to questions, especially for those questions related to issues concerning the park.

Both fish landing sites exhibited a "work camp" nature that subsequently caused problems in data collection. It was difficult to define a household since structures are occupied by workers who sometimes don't even share food (especially at Rwonyo). They are present for a number of days to earn cash but return to their homes to do other seasonal activities, such as cultivation. The information collected combines data from the home area and the fish landing. Information related to household origin, development, household economy, conservation, and resource use at the fish landing was mixed with information about cultivation, livestock, soil fertility, and soil conservation from the home areas. No cultivation or keeping of livestock is permitted at Rwonyo fish landing site and none was being undertaken at Rukukuuru.

III. BRIEF DESCRIPTION OF THE FISH LANDING VILLAGES

A. RWONYO FISH LANDING VILLAGE

Rwonyo fish landing village is located on the northern shores of Lake Mburo and lies within the park about 0.5 km from the former park headquarters. Rwonyo fish landing village was established in 1986 in response to a decision taken by the Lake Mburo Task Force that fishing on the lake should be permitted but no fishing villages would be permitted in the park. Hunting had been going on until then and the fishers had been practising illegal fishing methods using small mesh nets in great numbers. Fishers were collected by the Warden-in-Charge from fishing villages at several sites within the park. A site close to park headquarters was chosen for easier control over the fishing activity and the community. At the time of this survey, the people who formed the fishing community came from the neighbouring counties of Bukanga, Isingiro, Kashari, and Nyabushozi in Mbarara District and from Rakai District.

When Rwonyo fish landing village was established in 1986 there were approximately 600 boats on Lake Mburo. At that time, the village was under the control of park management. The number of boats was drastically reduced to 45 by the park administration. When the Fisheries Department began to control the fishing in 1988, the number of boats was increased to 52. The number of boats was reduced again in 1991 to 50. Eighteen of these boats belonged to and were operated by park staff.

The landing site was more of a working camp than a village because people went there to work and then frequently returned to their home areas. The park strictly controlled residence at the landing and prohibited wives and families. Thus, only eight women were resident at the fish landing. There were different groups of people within the community. Fishers held the fishing licenses and generally owned the boats and the nets. *Barias* are workers who actually perform the fishing. There were also fish-smokers and labourers who carried fish from the boats to the cleaning spots and smoking shades and cleaned and smoked the fish. In addition, there were traders who purchased the fish and supplied the community with commodities and sometimes stayed overnight. Finally, there were people who provided services like shopkeeping and running restaurants and bars.

Fishing was the main economic activity at the fish landing, resulting in a largely cash-based rather than subsistence-based society. Other economic activities had sprung up providing services to the people involved in the fishing industry; for example, firewood collecting, shops, bars, and restaurants.

The village is reached by a murram road (in poor condition at the time of the survey) leading from the main Mbarara-Lyantonde road through the National Park via the former park headquarters and tourist camp. During the rainy season the road could only be used by four-wheel drive vehicles or bicycles. The uncertainty of road transport meant that most fish was smoked before sale and transported to market by bicycle.

The fish landing was monitored and controlled by a Fish Guard employed by the Fisheries Department. The people who stayed at the fish landing had to pay a "camping fee" of USh2,000 per month to the park authorities and fishers also had to purchase a fishing license from the Fisheries Department. Those who operated park staff canoes paid USh1,000 and officially had been exempted from paying for licenses.

The community at Rwonyo fish landing village fell under the authority of the park (and so had to abide by its rules) but also fell under the Fisheries Department. The park's attempts to control the population by not allowing wives and families was resented as was the payment of a "camping fee," both of which helped limit the population.

The park authorities limited social infrastructure to discourage immigration. Sanitation at the fish landing was poor. There were no health facilities, and people had to go to Mbarara, Lyantonde, or Sanga for medical treatment. Some of the men slept under fish-smoking covers since housing was insufficient.

B. RUKUKUURU FISH LANDING VILLAGE

Rukukuuru fish landing village is located on the western shore of Lake Kachera in Rurambira Parish. The lake is the boundary between Mbarara and Rakai Districts. The fish landing lies about 7 kilometres from the eastern park boundary from which it is separated by the private ranches of the Ankole Ranching Scheme. Access to the fish landing was by a poorly maintained murram road with deep gullies. As a consequence, bicycles were the main form of transport used. There were no schools in or close to the fish landing and children had to stay with relatives in other villages to attend school.

The fish landing was established in 1950 by a group of people who used traditional handmade nets (*kyapa mukono*). In the 1960s, fishers and cultivators crossed the lake from Rakai District and settled here. The cultivators, however, gradually moved back to Rakai because of extensive crop damage by wildlife. In 1983, when LMNP was gazetted, the fish landing was closed. In 1986, when the park was reduced in size, the western shore of Lake Kachera was degazetted and people slowly returned to the fish landing. The majority of the people residing at the fish landing, however, settled between 1990 and 1991. Many were not original residents but had moved from other fish landings on Lake Kachera. Although Rukukuuru fish landing was growing by then, it was still much smaller than other fish landings on the lake. Rukukuuru and Nyanga fish landings were the only ones on the Mbarara side of Lake Kachera.

The fish landing was under the control of the Fisheries Department and monitored by a fish guard who was responsible for enforcing the use of legal net sizes and recording the daily fish catch. The Fisheries Department sold fishing licenses at Ush400/= per year. Plot owners paid USh10,000/= to the Fisheries Department as rent for the plot. There were 15 licensed canoes operating from the fish landing, but many canoes crossed from Rwebiriba fish landing on the eastern shore. The Fisheries Department authorised house building at the site. Some people built houses at the fish landing to rent them out to fish landing residents who owned no houses.

Rukukuuru fish landing fell under the Rukukuuru Resistance Council 1 Administration, which also covered residents and squatters on the private ranches. The fish landing had its own chairperson.

Despite the fish landing's role as a trading centre, fishing was the main economic activity and most of the residents were either fishers or *barias*. Fishing was carried out both day and night using gill nets and hooks.

IV. FINDINGS

A. ECONOMIC ACTIVITIES

While the two fish landing sites were included in the survey as a distinct strata of people involved in exploiting fish as a natural resource, these fishers are not exclusively involved in fishing. They also are cultivators and mixed farmers. Fishing is not a full time activity, varying greatly with seasons. The rainy season sees reduced fish catches as fish go out to the swamps and marshlands to breed. This corresponds to the tilling and planting season and so fishers are off the landing sites and populations at the sites decrease. In the dry season, when increased catches occur in the shallow water, there is little or no cultivation taking place and the populations at the sites increase.

B. IMPORTANCE OF FISHING AS AN ECONOMIC ACTIVITY

It was assumed that fishing is the primary economic activity of the residents of the fish landing villages; yet, of all the population at the fish landing villages, 44.3% mentioned farming as their main economic activity, while 39.3% mentioned fishing as their main economic activity. The rest (16.4%) were engaged in other economic activities such as trading and local brew sale.

Table 1. Main economic activities among the fishing communities

Economic Activity	Frequency	Percentage
Farming	27	44.3
Fishing	24	39.3
Mixed Farming	1	1.6
Other	9	14.8
Total	**61**	**100.0**

Fish sales, however, are a significant income earner. The survey revealed that 83.3% of the people at the two fish landing sites for whom fishing was the major economic activity (that is the 39.3%), mentioned fish sales as their primary income earner. Only 8.3% considered it as their secondary income earner. Fish sales were a major income earner for 44.3% of all the people at the fish landing sites, followed by crop sales (32.8%), trading (11.5%), local brew sales (8.2%), and charcoal trade (3.3%).

Table 2. Primary and secondary income earners of the fishing communities

Source	Frequency as primary source	%	Frequency as secondary source	%
Fish sales	27	44.3	16	26.2
Crop sales	20	32.8	5	8.2
Trading	7	11.5	7	11.5
Local brew sale	5	8.2	5	8.2
Charcoal trading	2	3.3	3	4.9
Other	-	-	4	6.6
None	-	-	21	34.4

Basket fish trapping for mud fish comprises a minor economic activity in the permanent swamps south of the park by the people in Isingiro and Bukanga Counties.

Fishing is a male-dominated economic activity. Although there were about eight and 12 women residing at Rwonyo camp and Rukukuuru fish landing respectively, only two women (one at each site) mentioned fishing as their major economic activity. One woman at Rwonyo mentioned fish sales as her major income earner and three women (one at Rwonyo and two at Rukukuuru) as a secondary income earner. Only one woman said she owned a canoe and a license at Rwonyo, and she employed a *baria* to do the fishing. The women were mainly involved in providing services at the sites such as selling beer and food or cleaning the fish before smoking (mainly at Rwonyo). The male domination of the fishing activity could be explained by the nature of labour demands, economic constraints, and possibly some cultural inhibitions to women participation, which needs to be substantiated.

The low female population at Rwonyo can be explained by the park policy attempts to curb the site's population by prohibiting the bringing of wives and families to the sites. The low female population at Rukukuuru, on the other hand, is possibly a result of the low population at the site on the whole, which makes demand for support services not viable.

C. FISHING METHODS

On both fishing sites visited, fishing is carried out from small one-person canoes with gill nets. Nets are sunk using stones at Rwonyo fish landing site while at Rukukuuru landing old dry batteries are used. At Rwonyo, nets are set in the afternoon and left overnight. On Lake Kachera, because of the floating vegetation which sweeps the nets away, nets are set mainly during the day when owners can accord them some degree of security. Alternatively, fishers have to spend nights on the lake to guard the nets.

At both sites, the setting of nets is done by either fishers or *barias*. Payment of *barias* was either cash or in-kind by sharing the fish catch between fishers and *baria*. Setting nets was a daily activity with few exceptions.

D. TYPES AND AVAILABILITY OF FISH

The size of the fish catch differs greatly on the two lakes. On Lake Mburo, the catch ranges between 500-2,500; on Lake Kachera, it is almost always below 200. Yet, the fish caught at Rukukuuru were much bigger than those caught at Rwonyo. The main catch is comprised of tilapia[1] *(Orechromis spp.)*, followed by nkegye (*Haplochromis spp*), and small amounts of African lungfish *(protopterus aethiopicus*, mamba), plus catfish (*Clarias Mozambicus,* male) and, at Kachera, a species of tilapia (*Orechromis viriabilus*, kajansi) which was introduced to the lake from the Kajansi Research Station.

While the majority of the fishing community indicated that there had not been a decline in the fish catch, 34% said they had noticed a decline. The decline was attributed primarily to over-fishing (47.4%), either because there were too many fishers, unauthorised fishing, or use of inappropriate fish net sizes. Undersized nets reduce fish populations since young fish are caught. The Fisheries Department insists that large sized nets be used. The only fish declines indicated by almost all the fish landing respondents were seasonal; that is, determined by weather. Dry seasons and dark nights increased catches while rainy seasons and moonlit nights reduced catches.

Declining fish catches seem to be more evident on Lake Kachera than on Lake Mburo. The Rwonyo fishers were not as bothered by any declines in fish catches as were the Rukukuuru fishers. The majority of Rwonyo residents insisted that the declines were only seasonal, while the Rukukuuru people said there were persistent declines.

Table 3. Has there been a fish catch decline?

Site	Noticed a fish catch decline	
	Yes	No
Rwonyo Fish Landing Site (n-31)	4 (12.9)	27 (87.1)
Rukukuuru Fish Landing Site (n=24)	15 (63.0)	9 (38.0)
Column Total	**19 (34.5)**	**36 (65.5)**

This difference in availability of fish is most likely a result of the tendency of the park policies to limit the fishing activity on Lake Mburo in terms of the numbers of fishers and the net sizes used. On the other hand there seemed to be no control mechanisms of the fishing activity on Lake Kachera, and the people reported that many illegal canoes were on the lake. Also, there were far more fish landing sites and fishers on the Rakai side of Lake Kachera.

[1] At Lake Kachera, this is locally called "Enkooki," after the dominant ethnic group around the lake, the "Abakooki."

Surprisingly, none of the fishers at Rukukuuru fish landing site showed concern about the environmental hazard of sinking nets with old batteries; nor did they attribute the fish catch declines to this practice.

E. FISH SMOKING

Individuals at Rwonyo smoked fish almost every day. The number of fish smoked each round ranges between 500-2,000. The fuelwood used for smoking is procured from within the national park. Many of the smokers buy wood from dealers who were authorised by park officials to collect it from the park and then sell it. A small number (8.2%) said they collected fuelwood from the park themselves.

The majority of fish caught is smoked because of transportation difficulties. The smokers' covers hold up to 2,500 fish per batch, though generally only between 500-1,000 were smoked at a time. Each smoker smoked a batch of fish most days of the week. In periods of larger catches, they would need to smoke two batches a day and so they worked overnight. The smoker purchased the fish and paid the assistants and the firewood seller only after the fish had been sold and the profit deducted. Each smoker purchased fish from about four fishers per day.

Very rarely did fish from Rukukuuru fish landing site get smoked since it was almost always sold fresh. Only during severe rainy seasons when roads became impassable was fish smoked and stored until it could be transported. The wood for smoking was collected from the nearby private ranches.

F. FISH MARKETING

Due to long distances, the lack of transport, and bad roads, the fish catch in Rwonyo fish landing was smoked. Fish mongers transport it the next day on bicycles to the urban centres of Lyantonde, Mbarara and, at times, Masaka.

Small amounts of fish were consumed within the sites and sometimes bartered locally for agricultural or livestock products.

The fish catch at Rukukuuru fish landing, on the other hand, was sold fresh since it is nearer to Lyantonde. Transport was still by bicycle, though at times it is delivered by canoes across the lake where there are better roads, available transport, and shorter distances to the urban areas. This was not without occasional problems. Transportation could be highly unreliable since floating vegetation on the lake sometimes sealed off the site for days, leaving only the poor road access to Lyantonde.

G. PROBLEMS FACED BY THE FISHING COMMUNITY

Table 4 lays out the main problems faced by the fishing communities, which include human injury by wildlife, poor roads that made fish marketing problematic, and expensive inputs, especially nets and canoes. Rwonyo inhabitants also cited restrictive park laws like the imposition of camping fees (a sort of rent), limitations on fuelwood collection, and the refusal to permit bringing families to the site. Floating vegetation at Rukukuuru fish landing, which

sweeps away nets at night, necessitated that people stay to protect their nets, thus doubling their workload.

Table 4. Problem faced in the fishing industry

Problem	Frequency		Row total
	Rwonyo	Rukukuuru	
Human injury by wildlife	8 (53.3)	7 (46.7)	**15 (24.6)**
Poor roads	9 (69.2)	4 (30.8)	**13 (21.3)**
Expensive/rare inputs	-	12 (100.0)	**12 (19.7)**
Park laws	3 (100.0)	-	**3 (4.9)**
Limited markets	2 (66.7)	1 (33.3)	**3 (4.9)**
Other	6 (85.7)	1 (14.3)	**7 (11.5)**
None	3 (100.0)	-	**3 (4.9)**
Not applicable	-	5 (100.0)	**5 (8.2)**
Total	**31 (50.8)**	**30 (49.2)**	**61 (100.0)**

The development concerns of the fishing community respondents are closely related to the pressing needs of the fishing industry and the specific locations of the fish landing sites. Poor social infrastructure ranked high both as a primary problem and secondary problem. The remote locations of the sites (thus low population) and the location of Rwonyo within the national park has hindered development of social infrastructure. Low population makes it not feasible to introduce such services, especially for Rukukuuru. The history of the park expansion and evictions of the people from the private ranches and Rukukuuru has retarded development by creating uncertainty of tenure.

Table 5. Development-related problem

Development-related problem	Frequency as a primary problem	Frequency as a secondary problem
Poor social infrastructure	43 (70.5)	28 (45.9)
Park related	5 (8.2)	4 (6.6)
Land related	3 (4.9)	4 (6.6)
Water related	-	2 (3.3)
Other	6 (9.8)	1 (1.6)
None	3 (4.9)	-
Don't know	1 (1.6)	-
Not applicable	-	22 (36.1)
Total	**60 (98.4)**	**39 (63.9)**

Development of social infrastructure requires sizeable capital investment, which the people cannot raise on their own. The majority of the people thus said that on their own they can do nothing (55.7%). This is why government help in improving roads and health facilities ranked high both as primary and secondary preferred government assistance.

Table 6. Preferred government help by the fishing communities

Preferred government help	As first priority	As second priority
Improve roads	25 (41.0)	22 (36.1)
Improve health facilities	22 (36.1)	13 (21.3)
Provide land	5 (8.2)	2 (3.3)
Provide water	4 (6.6)	1 (1.6)
Resolve park/wildlife problems	1 (1.6)	-
Other	2 (3.3)	7 (11.5)
No response	2 (3.3)	-
Not applicable	-	16 (26.2)
Total	**61 (100.0)**	**61 (100.0)**

H. LANDOWNERSHIP

Most of the fish landing community said that they own land (80.3%), while only 19.7% said they own no land. Of the people who own land, 53.1% were Banyankole Bairu, 32.7% were Baganda and 14.2% were other ethnic groups such as Bakooki and Bakiga. The land owned by these people is mainly off the landing sites—back in their home areas. Rwonyo fishing village is within the park; thus, people there do not own any land at the site.

At Rukukuuru site, the Fisheries Department was renting plots to individuals at the cost of Ush10,000. The department also authorised the construction of houses. Some of the houses were built by individuals specifically to rent them out.

The uncertain land tenure at Rukukuuru fish landing created by the history of LMNP was cited as a hindrance to the development of the site. The people recalled that prior to 1983 they had built semi-permanent houses according to the Fisheries Department specification. The evictions that accompanied the expansion of the park in 1983, however, were not easily forgotten and people only dared to put up grass, mud, and wattle structures. They could not be sure the park would not expand its borders again and evict them. They demanded land reallocation, and many said they were in the process of acquiring land titles.

I. ATTITUDES OF FISHING COMMUNITIES TOWARD THE PARK AND WILDLIFE

The fishing community at Rwonyo indicated a very positive attitude towards the park and wildlife. The most likely cause for this could be the influence of LMNP management over the site. The attitudes of the people on the site were felt to be highly influenced by the economic benefits they derived from the park and the fact that their continued stay on the site necessitated co-operation with park management. They could have feared to display negative attitudes. On the whole, however, the fishing communities were much more positive than the non-fishing communities.

Residents of the Rukukuuru fish landing site were more negative toward the park than those at Rwonyo, mainly because of the memories of the 1983 evictions following the park expansion. A comparison of attitudes was made not only between the two landing villages (since they had different histories with the park and were in different circumstances and relations with the park) but also between the fishing and non-fishing communities.

Table 7. Comparison of attitude scores between the fish landing villages (p=0.43841)

Attitude Scores

Site	Very negative	Negative	Neutral	Positive	Very positive	**Row total**
Rwonyo fish landing	1 3.2	4 12.9	5 16.1	4 12.9	17 54.8	**31** **50.8**
Rukukuuru fish landing	5 16.7	3 10.0	5 16.7	5 16.7	12 40.0	**30** **49.2**
Column total	**6** **9.8**	**7** **11.5**	**10** **16.4**	**9** **14.8**	**29** **47.5**	**61** **100.0**

Though the *p-value* from the chi-square test did not show any significant relationship between the individual fishing villages and the attitudes of the respondents towards the park and conservation (which could have been indicative of a possible influence of location of villages vis-à-vis the park on attitude formation), table 7 is still interesting. Rukukuuru fish landing site appears to be more negative than Rwonyo. And if you add up the "negative" and the "very negative" columns, slightly over 16 percent of the residents of Rwonyo fish landing village expressed a negative attitude towards the park and conservation compared to nearly 27 percent of the Rukukuuru fish landing village residents. Conversely, if you add up the "positive" and "very positive" columns, it reveals that nearly 68% of Rwonyo respondents expressed a positive attitude towards the park and conservation in compared to less than 57% of Rukukuuru residents.

At least two factors could possibly explain this difference:

a) Rukukuuru is not under the direct control of park management; therefore, its residents were more willing to express an open opinion.

b) Since they are close to the park offices, Rwonyo residents possibly derive a much greater direct benefit from the sale of goods to park employees and visitors. I have no evidence that this is true, however, and this is an issue that needs to be substantiated.

Table 8 presents a comparison of the attitude scores of the fishing and non-fishing communities (p=0.05892). Over one-third of the non-fishing communities' respondents expressed a negative attitude towards the park and conservation compared to only 21% of the fishing villages' respondents. Similarly, a much higher percentage of fishing village respondents expressed a positive attitude towards the park (62.3%) compared to only 49.2% of the non-fishing community. Indeed, nearly one-half of the fishing village respondents had "very positive" attitudes toward the park.

The highly positive score of the Rwonyo community greatly influenced the total attitudes of the fishing communities. The differences between the two villages noted above need to be taken seriously because these could, for example, indicate how economic benefits derived from a protected area can influence people's attitudes toward the protected resources and conservation in general.

The positive attitudes were determined by the fact that the fishing communities were not directly affected by the most prevalent problems associated with the park (namely, crop damage, problems of landlessness, lack of pasture and water during the dry seasons) since the majority of people originated from relatively distant places and owned land. The majority were there only periodically for work purposes.

Table 8. Attitude scores of fishing communities as compared to non-fishing communities (p=0.05892)

Attitude Scores

Type of community	Very negative	Negative	Neutral	Positive	Very positive	**Row total**
Fishing community	6 9.8	7 11.5	10 16.4	9 14.8	29 47.5	**61**
Non-fishing community	40 16.5	44 18.1	40 16.5	50 20.6	69 28.4	**243**
Column total	**46** **15.1**	**51** **16.8**	**50** **16.4**	**59** **19.4**	**98** **32.2**	**304** **100.0**

V. Factors Influencing Attitudes Towards the Park and Conservation

A. Problems Caused by Wildlife

When asked whether individuals had experienced problems caused by wildlife, 72.1% (p=0.19193) of the respondents claimed that they had. This figure was slightly lower than the same for the non-fishing communities (79.8%). The main problem mentioned was human injury (49.2%), unlike the non-fishing communities who highlighted crop damage by wildlife (p=00000). Those fishing communities' respondents who mentioned crop damage were referring back to their home areas since no farming was being undertaken at the sites. Human injury by wildlife was the main concern shown by the fishers. This is mainly because the hippos dwell in the water where the fishing is done. However, informal chats between the research team and fishing community individuals disclosed that this was more a fear of what might occur than of what actually had occurred. Of course, there were isolated incidences; given the nature of the environment at the sites, the concern is justified.

The majority of the fishing community were aware that the purpose of the park is "to save animals and plants" (67.2%) and earns money for the government (19.7%). The idea of the park's existence was considered a good one by 77.1%, mainly because they considered it good to conserve wildlife. We are not sure if this implied that these people appreciated the innate value of wildlife, or even if they really value it as such. The money-earning potential for the government and its value for tourists, plus other similar reasons also were mentioned.

B. Education and Age

Education turned out to be a major determinant of attitudes toward the park and conservation. More people with education above primary four were likely to be positive than the people with no education at all. The fact that the chi-square test show no significant relationship between education and attitudes in this set of data (p=0.48040) is surprising because the same variables cross-tabulated for the non-fishing communities alone (Marquardt, Infield, and Namara 1994) yielded very significant results (significance p=0.00715).

Table 9. Education of respondent by attitude score (p=0.48040)

Attitude scores

Education	Negative	Neutral	Positive	**Row total**
None	5 (35.7)	2 (14.3)	7 (50.0)	**14 (23.0)**
P1 to P3	3 (25.0)	1 (8.3)	8 (66.7)	**12 (19.7)**
P4 to P7 and above	5 (15.2)	7 (20.0)	22 (65.7)	**35 (57.4)**
Column total	**13 (21.3)**	**10 (16.4)**	**38 (62.3)**	**61 (100.0)**

Age seems to be a significant determinant of attitude formation of the fishing community, just as it was revealed by the analysis of the data of the non-fishing communities. The majority of the people (72.4%) who scored "very positive" were under 30 years and 20.7% were in the 30-39 age group. While this could be a reflection of the fact that the fishing communities are largely composed of young energetic males, the significance of this result cannot be pushed aside, especially if we consider that only 6.8% (n=2) of people who scored "very positive" were forty years and above. This could imply that the young people are also the ones who have had some formal education. More educated people appear to hold positive attitudes towards conservation. The relevance of this correlation between education and attitude formation has been highlighted in Marquardt, Infield, and Namara (1994), where the importance of community education for improving both community perception of the conservation concept and the park/people relations is emphasised.

Marquardt, Infield, and Namara (1994) noted that attitude statements that made reference the conservation concept (with one exception) garnered more positive attitudes than statements that made specific mention of the national park. On the whole, the fishing communities were more positive than the non-fishing communities; yet, they still expressed negative attitudes of over 30% for each of the statements that made reference to the park. This is in contrast to the conservation-related attitudes, which all scored less than 20% negative attitudes and over 60% positive attitudes.

Table 10. Conservation-related attitude statements

Attitude statement	Negative		Neutral		Positive	
	Fish	Non-fish	Fish	Non-fish	Fish	Non-fish
It is important to protect the animals and plants so that our children may know and use them.	8 13.1%	62 25.5%	4 6.6%	15 6.2%	49 80.3%	166 68.3%
It is important to set aside a place in which plants and animals can live.	10 16.4%	55 22.6%	3 4.9%	11 4.5%	48 78.7%	177 72.8%

The tables indicate that negative attitudes are against the park status and management style, not against conservation as a concept. Noteworthy is the attitude statement: "What people and their livestock need is more important than saving wild animals and plants." This resulted in very negative attitudes toward the park even though it referred to the conservation concept.

This is not surprising since the statement touched on the very sensitive aspect of the relative importance of conservation vis-à-vis human needs. Still, the fishing community was less negative than the non-fishing communities. Of the fishing community, 42.6% agreed with the statement. Of the non-fishing communities, the figure was 66.7%. The whole sample population registered 61.8%.

Table 11. Park-related attitude statements

Attitude statement	Negative		Neutral		Positive	
	Fish	Non- fish	Fish	Non-fish	Fish	Non-fish
Government made the park because they wanted to take our land and make us poor.	19 31.1%	84 34.6%	6 9.8%	26 10.7%	36 59.0%	133 54.7%
People should be allowed to use the park for grazing and farming as they wish.	22 36.1%	123 50.6%	1 1.6%	14 5.8%	38 62.3%	106 43.6%
Parks are a waste of land in Uganda and people are short of land in Uganda.	24 39.3%	137 56.4%	7 11.5%	21 8.6%	30 49.2%	85 35.0%
Grazing and farming must be prevented in the park or all the animals will be driven away.	19 31.1%	82 33.7%	5 8.2%	13 5.3%	37 60.7%	148 60.9%
The park should allow people to taste bush meat, otherwise why should the park keep animals we don't eat.	20 32.8%	91 37.4%	8 13.1%	33 13.6%	33 54.1%	119 49.0%

Local people frequently pointed out that they had lived in harmony with the wildlife for centuries, long before the park was created. They tended to attribute most of their problems (poverty, landlessness, underdevelopment) to the park's creation and the resultant evictions of people. The people often expressed or implied that they supported the idea of conservation but were not sure if it was necessary for government to create the national park. This points to the need for park management to work very hard to change negative attitudes toward their

management style. Park management also must ensure that the people realise benefits from the park. This could justify the park's existence and alleviate the costs that the people have to put up with, thus creating positive attitudes. Since these issues have been the focus of the Lake Mburo Community Conservation Project, we should expect the situation to have changed for the better by now.

VI. CONCLUSION

Contrary to what we expected, the survey data revealed that the fishing community is not dramatically different from the non-fishing communities (for example, in economic activities, development aspirations, perceptions of and concerns about wildlife, resource access and the park). This implies that the conclusions and the recommendations arrived at in the larger report on the non-fishing communities (Infield, Namara, and Marquardt 1993) largely apply to the fishing communities. Thus, the conclusions and recommendations made in that report about issues such as the role of education vis-à-vis formation of attitudes towards conservation, the influence of access to land, tenure security, conflicts over resource access, wildlife-related problems like crop damage in moulding the park-people relations also largely pertain to the fishing communities—as does the need for park management and government to spearhead the provision of alternative economic opportunities.

However, this present analysis reveals that the fishing community is peculiar in some aspects. Due to the geographical location of the fish landing sites in relation to the park and the distinct economic activities that the people are involved in, the communities have peculiar problems and concerns about wildlife and the park. The main problems the people face (poor social infrastructure, land tenure insecurity, and human injury by wildlife) have a direct bearing on their perception of the park since these problems have resulted from proximity to the park and its history.

For the park's management and community conservation programs this implies two things. First, the fact that the fishing communities are not very different from the rest of the communities implies that community conservation programs should not entirely treat them as distinct when implementing programs. Second, the fact that the different communities (cultivators, pastoralists, fishing communities) have some peculiar problems and concerns due to the nature of the communities, the activities they are involved in, and their historical relations with the park, means that there is need for specific programs that target specific groups and address issues that are peculiar to them. Thus, attempts to ameliorate concern about human injury by wildlife, underdeveloped social infrastructure, or non-availability of fishing inputs could be addressed under specific programs directed to the fishing communities. In a similar way, specific programs developed to solve the issue of crop damage could be directed toward cultivators and mixed farmers, while pasture and water programs are directed to pastoralists. On the other hand, general programs could address issues of land access and tenure, social infrastructure development, and community conservation education.

Finally, park management should play a leading role in ameliorating the problems highlighted by this study in order to create a truly positive attitude towards the park among the people. The significance of benefits derived from the park on attitude formation has been ascertained. The location of the fish landing sites within/near the national park necessitates a build up of positive attitudes towards wildlife for the successful conservation of Lake Mburo National Park.

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