

# AN EVALUATION OF THE LAKE MALOMBE CO-MANAGEMENT PROGRAM

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## ABSTRACT

An evaluation of the co-management arrangement on Lake Malombe was carried out using two attributes of the Oackerson (1992) framework, namely patterns of interaction and outcomes. While the Fisheries Department assumes that the long-term recovery of the fishery should be the main incentive for communities to engage in co-management, Beach Village Committees (BVCs) appear to view the incentives as being material and immediate while the rest of the communities remain unclear about the arrangement and its incentives. Most in the fisher communities get their extension messages through radio and fisheries extension other than through BVCs. There appears to be little communication among the structures created for co-management outside scheduled meetings.

The main areas of conflict in the fishery pertain to the theft of gears, destruction of other types of gears by *nkacha* (seine) crewmembers and the contest for power between BVCs and village headmen. Most of the conflicts are resolved by BVCs and chiefs while that of power relations between BVCs and chiefs remains largely unresolved. Most BVCs used to apply sanctions surrounding regulations on their own before the advent of the Lake Malombe Fishermen's Association. Methodological problems and the lack of past information makes it difficult to measure efficiency in terms of transaction costs. While most people felt that the dialogue between the Fisheries Department and fishing communities under co-management should continue, the general feeling was that so far, the arrangement has not resulted in increased equity. Most fishers are adamant that the BVCs and the Association do not represent their aspirations.

Sustainability issues around the co-management arrangement concern problems around the institutional setup, long-term support for institutional reform and the lack of clarity about the objectives and incentives on the part of both partners. The general state of the economy of the area and its ability to take the pressure off the fishery as an employer of last resort will be crucial to the success of co-management as a strategy for effecting recovery of the fishery.

## Introduction

There is a growing amount of literature, most of it unpublished, on the Lake Malombe/Upper Shire River user-participation program. The present study has its motivation, origin and funding from the International Center for Living Aquatic Resources Management (ICLARM)/Institute for Fisheries Management (IFM)/National Aquatic Resources Systems (NARS) Coastal Resources Co-management Research Project (ICLARM/IFM 1998). At the training seminar on "Institutional Analysis, Theory and Method" held in Maputo in November 1998 it was agreed that a revisit of the co-management initiatives in the project partner countries should be carried out ahead of the collaborative workshop in Malaysia in

August 1999. The seminar resolved that the revisit/progress evaluation should use the project research framework using the following selected criteria:

- The history of the co-management arrangement;
- Patterns of interaction among the co-management partners; and
- Outcomes (efficiency, equity and sustainability).

The aims and objectives of the revisit were to assess the 'Patterns of Interaction' among the stakeholders as result of co-management, and the 'Outcomes' using three aspects namely *efficiency* in exploitation and management of the fishery, whether there are any signs of improved *equity* in representation and the sharing of benefits among users in the communities and finally, the *sustainability* aspects of the co-management arrangement and whether the arrangement was resulting in changing behavior towards sustainable exploitation of the fishery. The history of the co-management arrangement is important in so far as it has bearings on the outcomes of the issues under review and the overall program.

## Methodology

Three methods were used for the revisit. For the history, secondary information from publications on the Malombe project and the three authors' knowledge of the program through their involvement with it right from its inception were the main sources of information. The second main source of information and data was from Donda and Hara's research for their doctoral studies. In addition to these two sources, a questionnaire survey was conducted for the four aspects (patterns of interaction, efficiency, equity and sustainability). Details of the survey are given in the later part of this report.

The report is organized as follows: after the preceding introduction and outline of the methodology, the history of the co-management arrangement is given. The second part deals with the questionnaire survey (sampling strategy, results and problems of the survey and a discussion of the results). This is followed by a discussion that draws the lessons from the evaluation. A conclusion is given at the end.

## History of the Co-management Arrangement

### *Why Switch to Co-management?*

In the late 1980s the Malawi Government (MG), the Food and Agriculture Organization (FAO) of the United Nations and the United Nations Development Programme (UNDP) jointly undertook a project with the objective of formulating a suitable management plan for the *chambo* (*Oreochromis*) in the South East Arm (SEA) arm of Lake Malawi, the Upper Shire River and Lake Malombe (FAO project No. MLW/86/013).

The project findings (FAO, 1993) were that the *chambo* stocks had collapsed in Lake Malombe and that fisherman had switched to the less valuable but still abundant (at the time in 1991/92) *kambuzi* (*Lethonops*) fishery. Worse still, fishermen had also started reducing the mesh size of the *kambuzi* seine nets from the legal 32.5mm (1.5 inches) meaning that the *kambuzi* stocks were also in danger of becoming overfished. Three main causes were suggested for the decline and collapse of the stocks: over capitalization, increased use of illegal fishing gears/illegal methods and government's inability to enforce the existing regulations effectively.

Several recommendations to MG emanated from the *chambo* research project (FAO 1993). In general, these recommendations were supposed to help restore fish habitats, protect juveniles and breeding fish and reduce fishing effort. While these had sound biological basis, it was realized that in the past, this alone had not been enough to ensure successful implementation of such recommendations as regulations or restrictive controls. One of the major constraints recognized was budgetary constraints (Fisheries Department 1993). In addition, the department was faced with increasing defiance and open resistance to compliance of regulations from fishermen. In fact by the early 1990s, incidences of violence against fisheries inspectors out on patrol duties had become common. To implement the new and more stringent regulations as was being recommended by the project, the MG would have needed even greater amount of resources and enforcement capability. At a time when Government was in the process of streamlining its activities and cutting down its budget under the World Bank (WB)/ International Monetary Fund (IMF), Structural Adjustment Program (SAP), this approach was a nonstarter. The Government had to

search for an alternative regime. The regime that seemed to provide the best option and chance for success seemed to be that which involved some amount of self-regulation by the user communities.

Government hoped that if this approach was successfully introduced, it would satisfy both the government's and the user's objectives of biologically-sustainable exploitation of the resource for the former and continued economic viability of the resource for the latter. These objectives would be achieved at, hopefully, at much less cost to government on the assumption that self-regulation and increased acceptance of the regulations by users would result in much less need for outside enforcement of the regulations. The long-term objective was to develop and have in place a management regime that would require minimum inputs from the Fisheries Department while at the same time ensuring sustainable economic viability of the resource for the fishing communities (Fisheries Department 1993).

The change in thinking concerning management of natural resources in the west in the last two decades must also be put as one of the major influencing factors (through donor funding, western experts, and the western training of local Fisheries Officers) for the adoption of co-management by the Malawi Government. Natural resource decisionmaking had been founded on positive ideology that primarily supported scientific or technical answers to natural resource problems (Lawry 1994). During this technological era, it was believed that potentially all technical problems could be solved through the application of scientific expertise. In fisheries, Gordon's (1954) 'Common Property Theory' and Hardin's (1968) 'Tragedy of the Commons' embodied this technological era. But by the 1960s there were increasing signs that these theories were not infallible. There was increasing distrust among the public about line-agency discretion in resource management and growing demand for public involvement. As a result, public participation in environmental debates and grassroots democracy have become popular issues in the west. Thus what had started as criticism of the 'Common Property Theory' and the 'Tragedy of the Commons' theory due to the increasing failure of the policies based on propositions from these is resulting in growing advocacy for alternative regimes based on decentralization and user participation. Following the end of the cold war in the early 1990s, western donors have demanded political democracy and transparency as essential conditionalities for development aid. In addition, donor projects in the resource management sector have drawn inspiration from some precepts of the World Bank Structural Adjustment including the notion that the central state should play a reduced role in directing and managing economic activity (Lawry 1994). The assumption is that local institutions are more accountable and have greater advantage over central State authority since they function at a level where self-interest and responsibility for sustainable resource management are potentially greater. Thus user participation in resource management has increasingly come as one of the conditions for donor aid as it is believed that this will result in greater accountability and also as part of the general drive to empower the formerly disenfranchised populace<sup>1</sup>. Thus donor support for finding solutions to the problem of Lake Malombe came in form of funding for activities aimed at promoting increased involvement of users in management of the fishery.

### *Management Objectives of the Malawi Government*

The objectives of the MG were stated as being to persuade the fishing community firstly, "To allow fish stocks to recover to levels experienced in the mid-1980" when production was highest (Figure 1) and secondly "to revert the recovered fishery to one based mainly on the high value *chambo*" which should be harvested sustainably thereafter.

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<sup>1</sup> According to Lawry (1994), Western donors argue that better resource management will result from policies that extend clearer property rights to users and give greater authority to local institutions, believed to be more accountable to the public.

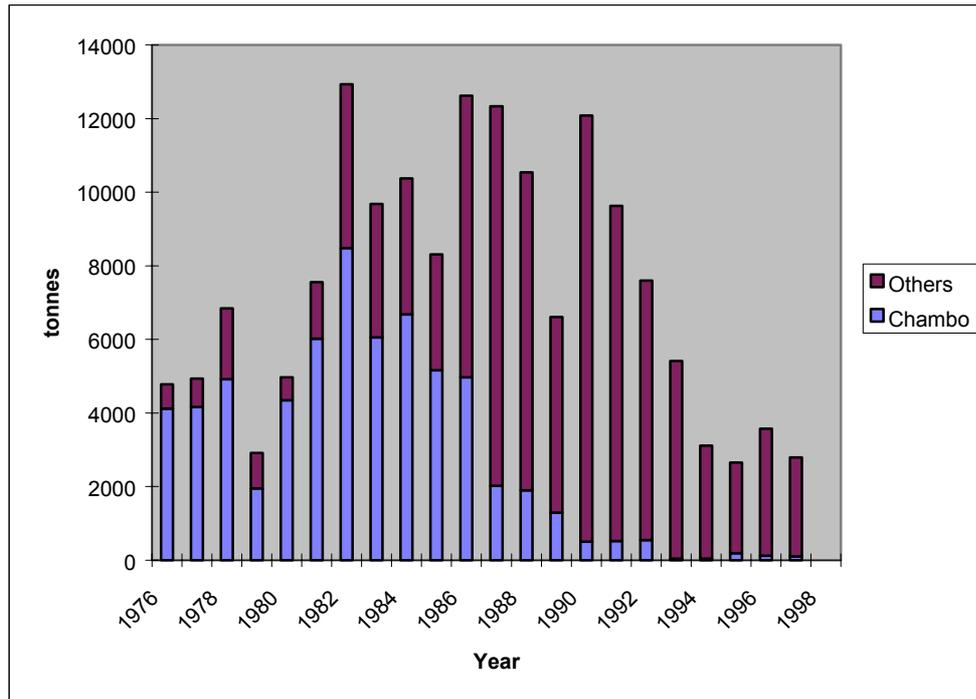


Fig. 1. Estimated total catch from Lake Malombe

### *User-community Objectives for Exploiting the Fishery*

After extensive interviews with members of the community, Bell and Donda (1993) deduced that the primary objective of the user communities was “to improve their living standards through increased income”. It was by no means self-evident from the investigations though that the fishing communities would have preferred the fishery to revert back to one dominated by *chambo* as government was assuming. After consultative workshops between government and the users the overall objective was agreed as being “To promote recovery of the fisheries of Lake Malombe and Upper Shire River to catch levels of the mid-1980s.” The workshops also resolved that initially, decision-making power concerning objectives and regulations would be retained by the Fisheries Department and that during this phase, the Fisheries Department was to attempt, through extension and education of fishing communities, to bring the objectives of fishing communities into line with its own. Only at a later stage would communities be allowed greater input into decisions on objectives and regulations. From the foregoing, Government appeared reluctant to give up its traditional role and seemed anxious to retain the authority to have the final say on the objectives and regulations that would govern exploitation of the fishery.

### *Regulations for Governing the Fishery*

Government presented the regulations recommended by the Southeast Arm, Upper Shire River and Lake Malombe Fisheries Management Project (FAO project No. MLW/86/013 famously called the ‘*Chambo* Project’) whose report was published in 1993 (FAO 1993) to communities at forums arranged between the Department and the communities<sup>2</sup>. These were not acceptable to fishers in the form presented. There followed therefore a period of negotiations between government and communities on all the proposed regulations to come up with acceptable specific regulations to govern the fishery. It was also agreed that the regulations would be reviewed annually at joint forums and changes made in accordance with the state of recovery of the fishery. It was further “agreed” that the original government’s proposed regulations would remain as higher and long-term goals to aim for.

### *Implementation of the Program*

The Lake Malombe Participatory Fisheries Management Program (PFMP) was launched and implemented as a multidonor-funded project. The main donors were; the German Technical Foundation

<sup>2</sup> For details of the proposals see (Bell and Donda 1993; Fisheries Department 1993).

(GTZ), the United Nations Development Programme (UNDP), the Overseas Development Administration (ODA) and the World Bank (WB).

The institutional arrangements for the PFMP are that the existing Mangochi District Fisheries Office is the frontal government unit in this co-management arrangement. It was assumed that the fisher communities did not have a ready institutional structure or setup to enable them to effectively play a role as the new management regime required. Thus the Fisheries Department facilitated the creation of community-level institutions called Beach Village Committees (BVCs) and in the training of the committees for the new role. Village headmen were made ex officio members of the committees in their areas of jurisdiction. An umbrella organization for all the committees, the Lake Malombe/Upper Shire River Fishermen's Association was formed in 1997. A sitting allowance for BVC members every time they had a BVC meeting was proposed. While the funds for the sitting allowance were initially to be sourced from one of the donor projects, the long-term solution was that the money would come from gear-license fees part of which would be ploughed back from government to fishing communities under the revised Fisheries Act.

## **The Questionnaire Survey**

### *Sampling Strategy*

Two sampling sites were selected. A community with a "strong" BVC and another with a "weak" BVC. The Fisheries Department extension staff who work with the BVCs within those communities helped in identifying the two BVCs. According to the staff, the criteria they used for deciding on "strong" and "weak" was whether the BVC was functioning well or not in their judgement of what a BVC was supposed to be doing. On this basis, Kadewere (on the east bank) beach was selected as strong BVC sample site while Lundu (on the west bank) was selected as a weak BVC sample site. At each sample site, 30 people were to be interviewed. The following were the categories of the respondents:

- All BVC members (usually ranging between 10 to 12 in number)
- The rest (18-20) non-BVC members had to be from the community that the BVC represented and were selected as much as possible from the following categories; crewmembers, gear owners, fish traders, women. This would, hopefully, enable us to have as broad a perspective as possible.
- The Fisheries Department extension workers were also interviewed and asked to give their opinion on the various aspects of their work as direct facilitators of the co-management program and immediate representatives of the fisheries department within the fishing communities.

The questionnaire was interpreted into the local language (chichewa). Prior standardization of the questionnaire was therefore important. This would have, it was hoped, eliminated differences in interpretation of questions by the researchers that come with difference in understanding of English and its interpretation into the local language. The data was collated at the end of each day, especially the first day, in order to clarify points and iron out the mistakes made. The extension workers based at the two sites assisted in informing the respondents about the survey and also in some cases helped in identifying the interviewees.

### *Assumptions*

This questionnaire survey was not intended to achieve statistically 'representative' samples of the BVC members and non-BVC members of the community. The aim was to interview a sample of BVC members and non-BVC community members who are typical (in a social and economic sense) of the BVC members and non-BVC members of the community. It was hoped that the averaging of views and opinions would be balanced out by interviewing people from a site with a strong BVC and another with a weak BVC. Furthermore, it was an attempt to explore the range of meanings, opinions and understandings that the participants would bring to the questions under discussion. While the hope was that the exercise would help bring out a wide range of views, we would not to claim that this 'identified opinion among BVC members and their communities' in a definitive sense.

Nevertheless, when there is strong consensus within a given group, it is reasonable to suggest that the views expressed may be widespread among other members of the group who have similar characteristics.

When there is such consensus among a number of people from the group, one may speculate that such consensus might be pervasive within – and therefore of more general significance for – the group or community in question as a whole.

### *The Actual Survey*

*Kadewere sample site.* At Kawedere, all the 12 members of the BVC were interviewed. The BVC was composed of 3 gear owners, 6 crewmembers, a member of the community who does not participate actively in fishing, the Village Headman (VHM) and the Fisheries Assistant. The village headman himself is a gear owner. All the BVC members are male. The non-BVC members interviewed comprised of five gear owners, six crewmembers, 7 fish traders and one community member who did not actively participate in any aspect of the fishery and identified himself as a subsistence farmer. Two of the traders interviewed were women. The history of the BVC is that it was first constituted in 1993. It is believed that, the VHM disbanded the BVC and constituted another by appointing new members claiming that the original BVC was weak.

*Lundu sample site.* At the time of the survey, the BVC at Lundu village was composed of 11 members as follows; 2 gear owners, 7 members of the village community who did not take any active part in fishing and identified themselves as subsistence farmers (of these 7, one was a woman), 1 village headwoman, 1 fisheries extension worker. A total of 19 non-BVC members of the community were interviewed. Six of these were gear owners, 5 were crewmembers, 2 were fish traders while 6 identified themselves as subsistence farmers with no active participation in fishing. One of the traders was a woman while 4 of the subsistence farmers were also women.

### *Problems Encountered in the Survey*

Some of the problems of the survey were:

- Arbitrary choice of the beaches based on extension workers' judgement of what is a strong and weak BVC;
- Use of fisheries staff as interviewers – would respondents be very free to answer the questions? They might tell the interviewer what they think people from government want to hear;
- Statistical validity of the findings due to the small sample size. The two BVCs sampled represent 7% of the 28 BVCs in Malombe and the 58 people interviewed (BVC and non-BVC members) represent 0.12% of the estimated population of the community in the fishing villages along Lake Malombe. Because of this, percentages and proportions are not used in the presentation; and
- The open-ended questions proved problematic in some instances.

The following are the results of the survey. They are grouped under the two main research themes namely 'patterns of interaction' and 'Outcomes.'

## **Results of the Survey**

### *Patterns of Interaction*

*Incentives for co-management.* Most BVC members said that there were incentives for being members of the BVC. The incentives mentioned were mainly financial when they attended workshops or meetings organized by the Fisheries Department. Those who thought that there were no incentives also mainly referred to the lack of financial incentives. Some of the BVC members said that they had accepted to be on the BVCs in order to help with management of the fishery in their areas. Some also indicated that they benefited from BVC membership through learning about fisheries management. Most BVC members from Kadewere also said that since the start of the program, there had been improvement in catches of fish and also that compliance to regulations had improved. Almost all traders interviewed said that catches had declined and that prices of fish had gone up dramatically in the last few years. Both BVC and non-BVC members of the community thought that one of the major incentives for the partnership with government was the dialogue which did not exist prior to the program and the improvement in relations between fishers and government this had brought about.

*Communication.* Most of the respondents received messages. The most common messages were about the closed season and minimum mesh sizes. Other types of messages that they received to a less extent were about licensing and *Kasawala* (minimum take-able size of *chambo*). Most people got the messages through the radio program *Usodzi wa lero* and secondly through extension services of the Fisheries Department. Very few people said that they got messages through their BVCs. There seemed to be very little communication among BVCs outside meetings arranged by the Fisheries Department. It appeared as if the Lake Malombe Fishermen's Association (hereafter referred to as the association) has also not yet activated its coordinating role.

*Conflicts.* The following were the type of conflicts mentioned as existing in the fishery:

- At Kadewere, the destruction of other fishers' gears by *nkacha* (seine) fishermen were said to be common and a source of conflict. Long-line fishermen seemed to be the most affected (gill nets are used as active gear other than being left overnight like long lines are).
- Theft of fishing gear was also mentioned as being another source of conflict. Theft occurred within fishing units by crew members or by other people if net is left on the beach;
- At Kadewere, there were growing complaints and disgruntlement with the chief's decision to collect *mawe*<sup>3</sup> twice a week and introduce the use of *thini la a mfumu*<sup>4</sup>.
- One of the common sources of conflict mentioned at Lundu was their fishermen going to fish illegally around the Likulungwa area during the closed season. This causes friction with the BVC at Likulungwa;
- Another bone of contention between chiefs and BVCs was that chiefs sometimes accept incoming migrant fishers who have no transfer letters without the permission or knowledge of BVCs.

Theft and destruction of gear are dealt with by the BVC and Chiefs. In some instances those aggrieved still report their cases straight to police depending how much they trust chiefs/BVCs to resolve their problems. The issues of increased collection of *mawe* and use of *thini la a mfumu* remain unresolved. No one is prepared to confront the chief over these issues. A number of fishermen had left the beach to operate from other villages. The fishermen from Lundu found fishing illegally in the Likulungwa area were usually expelled by the BVC of that area.

*Sanctions.* The most common types of offences that were being committed in the fishery were said to be poaching during the closed season and the use of undermesh sized nets (*nkacha*, gill nets, *kambuzi* seine net)

Before the formation of the Lake Malombe Fishermen's Association, most BVCs carried out sanctions on their own. For poaching, gear was confiscated and a fine imposed before the gear could be given back. For under-meshsized nets, the bunt was permanently confiscated and in some instances burnt. In the latter cases, the owner of the net would be told to cut the under-meshsized bunt on his own in front of the BVC. It was then burnt in public immediately, e.g., in 1997, Mitole BVC and Katapwito BVC burnt such bunts. In the same year, James Msusa was fined K2 000 for fishing during the closed season. Following this incident he took it upon himself to report those who were also fishing during the closed season. These were arrested on the strength of this information. Some first and minor offenders at other beaches were just rebuked and warned following their transgressions.

In 1997, the chiefs were informed that under the existing laws, they could not collect fines in form of money from wrongdoers. They could only collect material things such as chicken, goats, etc. Following the formation of the Association, things seem to have changed in the sense that this body seemed to have given the impression that it had assumed the duties and functions of BVCs. By 1999, BVCs had more or less stopped applying sanctions locally because of the confusion around their duties vis-a-vis those of the

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<sup>3</sup> Mawe is a local custom whereby fishermen are required to give a determined amount of fish to the village headman in whose area the beach they land at is. In Lake Malombe the custom has been to give one tin of fish per week.

<sup>4</sup> Chief Kadewere has introduced a system at his village beach that requires fishermen landing their fish there to use tins provided by him for selling their fish. As payment for using the tin, the gear owner has to leave at least three quarters full of fish in the tin when giving it back to the chief or the people acting on the chief's behalf.

Association and the problem concerning the collection of fines in form of money. In addition, the Fisheries Department seems to have started carrying out enforcement without the invitation of the BVCs as had been agreed under the program.

*Share of responsibilities under the partnership.* According to the agreed objective for the management of the fishery under the co-management regime (i.e., “Recovery of the fishery and its sustainable exploitation thereafter through partnership between government and user communities”), the following tasks (Table 1) had been / were being executed. The table also shows who had carried out or was carrying out the specific task between the Fisheries Department and BVCs.

**Table 1. Tasks or activities under the Malombe co-management partnership**

Task or activity	Responsible partner		
	FD	FD & BVC	BVC
• Review of Fisheries Act to incorporate user participation			
• Enactment of revised Fisheries Act			
• Formulation of regulations to effect recovery			
• Enforcement of the Regulations (mesh size and closed season);			
-checking mesh sizes of gears			
- patrolling			
- arrest of offenders			
- applying sanctions for offences committed			
• Control of access through transfer letters			
• Licensing			
- collection of license fees			
- issue of licenses			
- confiscation of unlicensed gears			
• Annual review of program			

The review of the Fisheries Act in order to incorporate enabling legislation and also the enactment of the revised Act were carried out by the Fisheries Department with the professional help of the Ministry of Justice. As the mother ministry, the Ministry of Natural Resources was also actively involved in the whole process. Revision of regulations following the recommendations of the *chambo* fisheries project was done jointly between the two partners. As shown, most of the operational activities are carried out jointly between the two partners. Under enforcement, these include checking gears that they are the right mesh sizes, patrols especially during the closed season, the collection of licence fees from fishermen and the annual review of the program. BVCs though are reluctant to get involved in the arrest of offenders. Earlier in the program, BVCs used to apply sanctions on their own such as confiscation of gears during closed season or confiscation of under-meshsized bunts. But as of 1999 BVCs rarely applied such sanctions on their own. The main reason given for reluctance to confiscate gears was that they feared the consequences of gears being stolen while in their hands. In general also, there was fear of reprisals from owners of confiscated nets and their crews. Another factor is the issue of the feeling that they are doing risky work without pay. The best that most BVCs do is to expel wrongdoers from their areas of jurisdiction. Usually they also report the problem areas to the Fisheries Department which is then expected to come and patrol and arrest any wrong doers which is more or less going back to the same old strategy. As a result, it is only government which arrests and prosecutes offenders. The only task that BVCs were performing on their own was the issuing of transfer letters to migrant fishers. Issuing of gear licences is a responsibility of the Fisheries Department. Under the partnership, the BVCs are expected to collect the licence fees from their members and hand it over to the Fisheries Department for issuance of licences. This aspect of the partnership has gone very well to the extent that the number of gear owners who renew their licences annually had dramatically improved from the licensing season 1994/95 as shown in Table 2 under *nkacha*, a gear which is mainly found on Lake Malombe. The issuing of transfer

letters and the collection of licence fees were supposed to enable BVCs to limit access to the fishery in their areas for nonmembers of the Malombe fishing community. To a certain extent, BVCs had used this authority to keep fishermen from Lake Chilwa out of Lake Malombe.

**Table 2. Percentage of different types of fishing gears licensed in Mangochi District**

Year	Gill nets	CSN	Chilimira	KSN	Nkacha
1990/91	7.3	11.0		28.1	21.7
1991/92	6.3	9.6		17.8	13.0
1992/93	2.3	7.1		11.3	21.7
1993/94	1.0	11.9	20.3	3.1	12.9
1994/95	1.8	3.0	4.4	15.5	84.4
1995/96	0.9	3.0	14.5	15.2	42.1
1996/97	0.6	0	66.4	20.1	22.8
1997/98	1.9	0	38.3	30.6	61.1

*Legitimacy of management regime.* Here the question to ask is, had the new regime improved the level of law adherence and attitudes toward regulations among users? According to Jumpha (1996) the participatory Program had resulted in improved relations between most fishermen and government staff especially the inspectorate section which was not the case in former times when enforcement activities were always met by hostility. The majority of fishermen now seem to appreciate the reasoning behind the regulations and are working hand-in-hand with the inspectorate personnel. The inspectorate also felt that infringement of the regulations had also decreased as a result of the program. The main problem that had been experienced was that the new regulations had not been enacted until October 1997. Until then, those caught breaking the new regulations could not be prosecuted. This demoralized those who abided by the regulations and frustrated the inspectorate as they could not bring offenders to book. No figures existed though that would help compare the levels of compliance now and before the program started.

### *Outcomes – Efficiency*

*Optimal rate of use.* Most BVC members interviewed felt that catches had improved in the last two years. Among the non-BVC members, those who thought that there had been no improvement were mostly traders. These in most instances talked about a longer-term perspective saying that the amount of catches and the quality of fish had declined compared to the early 1990s.

Figure 1 shows estimated production from Lake Malombe and the Upper Shire River for *chambo* and all other species. The figures show that catches continued to decline up to 1995, three years after the launch of the Program in 1993. A positive impact would have resulted in the decline being arrested or better still the catch increasing on the 1992 figure. There was an improvement in catches in 1996 and then a decline again in 1997. Overall, the Program has not had a clear and genuine impact on the negative production trends by 1997. Four possible reasons can be given for this:

- That the regulations put in place to stop and reverse the decline do not go far enough to address the problem of overfishing (both recruitment and growth);
- That users had ignored the new regulations and were still using under-meshsized nets and infringing the closed season;
- That it took time for the program to start functioning fully and thus start showing its impact; and
- That other external factors beyond the program's control, such as environmental or weather, could have been responsible for the continuing low productivity.

According to Banda (1996) the experimental fishing trials done in Lake Malombe as part of the monitoring of the fishery over a period of two-to-three years (1994-96) showed that the agreed 19 mm mesh size *nkacha* net still caught 40% immature fish. Furthermore, by 1995, 40% of the fishermen had not yet changed to the agreed 19 mm mesh size and were still using nets of mesh size less than 19 mm (Mtika 1996; Jumpha 1996). Apart from this Banda further points out that a simple gear selectivity test between a 19 mm mesh size net and another of less-than-19 mm mesh size (0.5 or 0.25 inch) showed that the former caught 54% less fish than the latter. Implementation of the 19 mm mesh size regulation had, thus, serious socioeconomic implications for the fishers as it would have resulted in much less catch. There is strong suspicion therefore that even fishermen who had changed to 19 mm were still using

mosquito-net lining in their bunts to keep their catches healthy. Because of various project specific implementation problems such as change of strategy from compensation for illegal nets to loans for the [MAGFAD](#) project and delays in starting of projects such as the UNDP project, the Program did not take off fully in 1993.

Thus a combination of the first three would be the most probable explanation for the lack of positive impact on production trends in the first few years of the program. At the same time, one cannot completely discount the probable contribution of the fourth factor without further investigations.

For government and its stated objective of effecting the recovery of the more valuable *chambo* fishery, the worrying aspect of the continuing decline is the fishing-down of the *chambo* to levels that might make it impossible to effect the recovery. The *chambo* project (FAO 1993) had estimated that at the 1991 level of estimated catch of about 500 tons, it would have taken at least 14 years of good and effective management for the fishery to recover to its early 1980s level of 5 000 tons or more. The further decline of catches to about 100 tons in 1997 (Figure 1) would make recovery even harder and longer if it did not effectively signal the commercial extinction of the *chambo* fishery in Lake Malombe and the Upper Shire River.

*Transactional costs.* In order to perform the tasks listed in Table 1, material and financial resources were required (Table 3). For government vehicles, boats and other equipment were used. Operational funds for fuel, staff allowances, etc., were either sourced from donor project funds or from the Department's own operational budget. In order to carry out most of their tasks, the BVC members walked. Bicycles were also used. For taking minutes of meetings, issuing of transfer letters and anything concerning writing, paper and pens are used. Initially these were provided by the Department. While it might be possible to extract costs incurred by government from Government expenditure records, it was difficult for most BVC members to quantify how resources they had used to carry out their assigned tasks.

**Table 3. Resources required in order to execute activities and the cost items**

Operational task	Fisheries department		BVCs	
	Required resources	Cost items	Required resources	Cost items
Gear checking	Motor vehicle or boat, enforcement personnel and mesh gauge	Fuel, staff allowances	Walking, bicycle and mesh gauge	Energy for walking or riding?
Patrolling	Motor vehicle or boat, enforcement personnel and police officers	Fuel, staff allowances	Walking or bicycle	Energy for walking or riding
Apply sanctions	Vehicle, police and judiciary for prosecution	Fuel and time to give evidence in court	Recognition of authority by fishers and VHM	
Control access through transfer letters			Paper and pens and ability to expel outsiders	Stationery and persuasive authority
Collection of license fees			Persuasive authority of BVC, walking, bicycle and safekeeping of money before handing over	Energy for walking /cycling and persuasive authority
License issuing	License book and pens	Cost of stationery		
Gear confiscation	Motor vehicle or boat, police officer, enforcement personnel	Fuel, staff allowances		

It was envisaged that under co-management, costs of managing the fishery would be reduced to below what they used to be before the launch of the program after the initial large outlays of implementation costs. In an ideal situation communities led by BVCs would be carrying out most of the tasks, especially those pertaining to licensing and enforcement, on their own. Indeed if the BVCs and communities were able to carry out most of the tasks under the arrangement on their own, this would dramatically reduce involvement of the Fisheries Department and the costs of managing the fishery since the costs of resources BVCs required were far less than those that the Department required (Table 3). The Malombe arrangement had not reached that status thus far. Most of the tasks were still carried out jointly with government or by government alone. One would term this status as consultative (Sen and R. Nielsen 1997).

*Cost of introducing the strategy.* The introduction of the user-participation approach has involved a lot of activities which had needed substantial funding most of which had been sourced from donors. Some these activities were:

- Reorientation training for extension staff to equip them with skills to facilitate the new approach;
- Consultative meetings with communities;
- Training workshops to equip representatives of communities (BVCs) with abilities to participate in the new regime;
- Money for loans and training for [Income Generating Activities \(IGAs\)](#);
- Money for guarantee of loans for converting nets;
- Employment of local extension and [IGAs](#) experts.

The costs pertaining to these activities and also those involving salaries, allowances and benefits of the public servants attached or deployed to the co-management program can be termed *implementation costs*<sup>5</sup>. Clearly, the introduction of the new approach has required quite a lot of funding and also had been time consuming. From indications at the time, there appeared a need for long-term commitment in both human and financial terms to usher in the new approach. For the approach to be sustainable, this commitment had to come from both government and communities in the long term. Some of the costs that are being incurred as a result of co-management did not come under either operational or implementation costs. For example, fishers were likely to have been experiencing what Hersoug and Paulsen (1996)<sup>6</sup> have termed *compliance costs* and also, most probably, *avoidance costs*. Although communities at large did not seem to be actively involved in any tasks under the co-management arrangement, we must ask whether they were incurring or saving any costs as a result of co-management. While it was possible to collect and analyze most of the data and information on expenditure by government and donors, there were, in general, methodological problems around collecting information for analyzing these various aspects of management costs/savings for the BVCs and community as a whole.

*Major decisions/decisionmaking.* Both BVCs at Kadewere and Lundu had said that they had not taken any major decisions on their own in the preceding 12 months. One of the major decisions that BVCs on Lake Malombe had major influence over since the launch of the program though was the change of the closed season for *nkacha* and *kambuzi* nets from January-March to October-December. Another decision taken by BVCs on their own had been the banning of the *matemba* seine nets from Lake Chilwa from operating in Lake Malombe. In most instances though, BVCs did not seem to make their own decisions. Most of the tasks that they were implementing had been decided together with the Fisheries Department. Usually though, BVCs drew up their own strategies for implementing these decisions taken together with the Fisheries Department. For example, they decide on their own how to collect the net-licenses fees from their fishermen. Some BVCs decided on their own to go further than just confiscating undersized bunts of nets and started burning them. Usually the decisions were taken in a day's meeting. BVC

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<sup>5</sup> *Implementation costs* are the costs of establishing a fisheries regulation regime and getting the programme operative; and enforcement costs are defined as "society's total expenses related to achieving a given level of compliance with regulations" (Hersoug and Paulsen 1996:42).

<sup>6</sup> The two authors define *compliance costs* as the initial expenses borne by equipment owners in order to adapt to new regulations; *Avoidance costs* are those costs incurred in order to hide noncompliance with new regulations.

meetings last for about 2-3 hours. The decisions were taken by consensus. If there is no agreement, the issue was pended or thrown out.

### *Outcomes – Equity*

*Representation.* At both Kadewere and Lundu, people felt that the fishers had the most interest in the fishery. The Fisheries Department was put either as second (at Lundu) or third (at Kadewere) in terms of being a stakeholder.

It had been agreed by all BVCs in Lake Malombe that elections for new members should be held every two years. Replacement of members in the interim period had to be done by nomination by the BVC. The Fisheries Assistant of the area had the role of facilitator in the elections and reelections of the BVC. The Fisheries Department was still responsible for the training of new members. Most of the BVC members interviewed said that they got their positions through election by the community. In the case of Kadewere, the village headman had expelled most of the elected members and had appointed or coopted new people in their positions. Six of the nine members were one way or another related to him. In fact the Chairman, a crewmember, was also the nephew of the village headman and therefore the heir apparent to the chieftainship. The one member who did not participate in any fishing was also the son of the village headman. At Lundu the first BVC was only changed after four years through the influence of the Fisheries Assistant for the area because it had been inactive. The BVC at the time of the survey was composed of seven people with no participation in fishing whatsoever including two women. Their chief had also been a woman. The reason given for the nonparticipation of gear owners and crewmembers from the village was that they did not land their fish at the village beach. Most fish on the east bank and as such land their fish at Likulungwa or alternatively they landed their fish on the neighboring village's (Mtambo) beach.

*Expectations from co-management.* The expectations from co-management did not seem to be convergent either. This can be deduced from the difference in what were seen as incentives and objectives for co-management by the main stakeholders (government and fishers). The general feeling was that co-management has not changed anything about the sharing of benefits from the fishery. Most people in the community felt that gear owners still benefited the most. The common suggestion had been that loans should be given to non-gear owners in order for them to become gear owners.

### *Outcomes – sustainability*

*Resilience of the system to external shocks.* Since the start of the co-management arrangement, one of the major external shocks had been the influx of fishers from Chilwa when it dried up 1995/96. BVCs handled the influx by refusing the fishers permission to fish from their beaches and advising them to proceed onto to Lake Malawi where their under-meshed *matemba* nets were allowed. The other external factor was the usual annual shortage of food in the rainy season, January to March. For communities relying on buying food a source of income especially at this time of the year is very important. Some fishers go to Lake Malawi with their *nkacha* while some change to the use of gill nets or long lines. Some admitted that they poached during the closed season in order to survive.

*The partnership.* There was a general feeling within communities and among the fishers that the arrangement should continue. The reasons given for this were that the dialogue between Fisheries Department and fishers has improved trust between the two and that the arrangement had improved compliance to regulations. The following were suggested as ways of improving the co-management arrangement: study visits, giving greater powers to BVCs from chiefs and giving incentives to BVC members. Incentives suggested were loans for buying nets and paying the BVC members *Kangachepe*<sup>7</sup>.

*Threats to sustainability of the co-management regime.* The following can be said to be threats to the sustainability of the co-management arrangement:

- Nonimplementation of the provisions of the Fisheries Act and its possible inadequacy as shown by the issue of chiefs and BVCs not being able to collect fines for sanctions;
- The lack of clarity as to the role of the various bodies in the arrangement and the share of responsibilities thereof. Here the establishment of the Association appeared to have brought

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<sup>7</sup> *Kangachepe* is a vernacular expression of demand for a token, however small, for a service rendered.

confusion for BVCs. The resumption of enforcement activities by the Fisheries Department without consultation with BVCs was another issue that had disappointed BVCs. They felt disempowered and that it appeared as if Fisheries Department wanted all along to continue with “business as usual;”

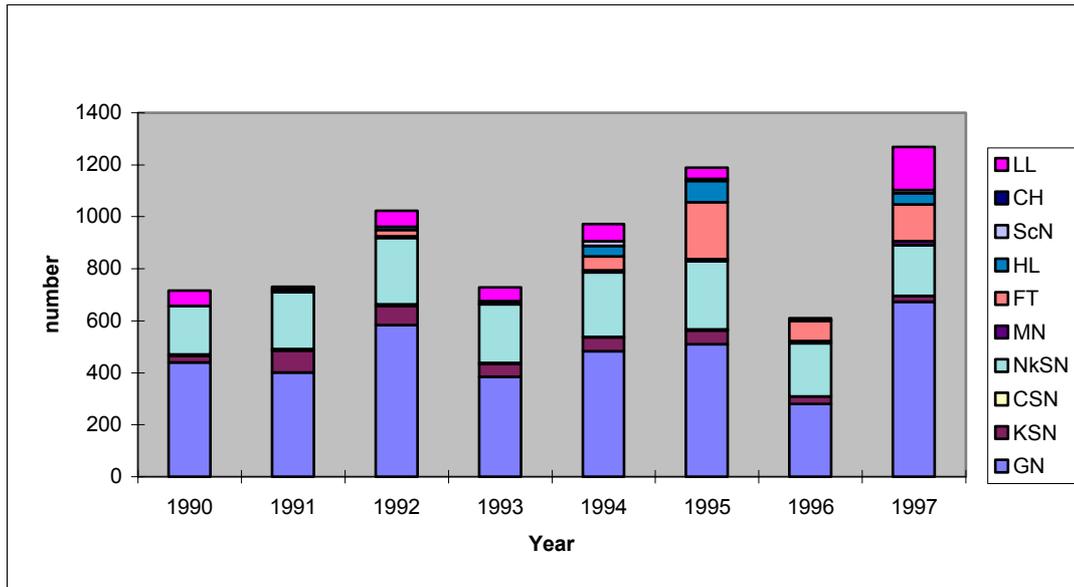
- Contest for power between BVCs and village headmen;
- The gulf in incentives for co-management between government and BVCs and lack of clarity of the operational definition of co-management;
- The seeming misunderstanding of the concept of co-management among the stakeholders (government, BVC members, chiefs and fishers);
- Lack of long-term financial support and funding for the program; and
- Lack of economic opportunities outside fishing.

Some of these points, if not discussed already, are elaborated in greater detail below.

*Reliance on outside (funding) assistance.* The program’s various components were funded through four projects. The projects’ specific objectives were tailored to contribute to the overall goals and objectives. Although coordination was made easier by placing program implementation authority in the hands of the Fisheries officer at the Mangochi District Fisheries Office, problems that come with differences in donor policies, disbursement and control of funds and different timeframes could not be avoided completely. For example, problems had been routinely experienced with flow of funds from the World Bank project which was responsible for the enforcement component. The end of the fifth cycle of the UNDP project in 1997 resulted in termination of services of the Extension and IGA experts; The complementary UNDP program II (Small-scale Secondary Industries Development) never performed as had been expected; GTZ policy reversal concerning gear compensation resulted in a setback in relations between the communities and the department and also stalled progress on change of illegal nets. By 1997, all projects but one had phased out. Unfortunately foreign donor assistance will be required for some time to come if the program is to continue since government cannot afford to fund the program on its own. Some of these problems surrounding donor funding are likely to persist. The problems of the need for outside assistance bring into focus the issue of sustainability of the new regime; how long will outside assistance continue to be required before the two partners, government and communities, can take over overall financial responsibility? Can the program be sustained without outside assistance?

*Economic opportunities outside fishing.* Introduction and development of Alternative and Supplementary Income Generating Activities (A&SIGAs) is supposed to be one of the fundamental components of the management strategy. A&SIGAs are intended to provide alternative economic opportunities. This would relieve the pressure on the already overcapitalized fishery by attracting participants away from the fishery and reducing, if not stopping completely, new entrants. By helping to reduce effort, it was hoped that this would contribute towards achieving sustainable levels and patterns of exploitation. But the main IGA program, the Program II of the UNDP fifth country cycle program, and the smaller component in the UNDP Fisheries project did not have the desired impact. In fact the number of gear owners, assistants and fishing gears was still growing by 1997 (Figures 2 & 3). One problem with this strategy was that unless the earnings from the alternative economic activities are potentially better than in fishing, the latter will continue to attract a greater number of people. Also, in the absence of any genuine economic alternatives as the situation is right now, the fishing industry will continue to act as an employer of last resort. Some notable success has been achieved with women in the Lake Malombe area, mainly doing fish-processing business. After getting start-up loans from the UNDP project IGA component and paying them back in very short time, 16 out of the 17 women’s groups had actually graduated to get loans from the Malawi Rural Finance Company (MRFC) (Scholz, Njaya, Chimatiro, Hummel, Donda and Mkoko 1997).

While this was encouraging in that the women contribute to family income, it did little to start relieving pressure on the fishery as fish processing increased demand for fish, thus driving up fishing effort. The IGA component was mainly meant to provide alternatives so as to attract men away from fishing. In this context, men’s groups had also been formed and given loans for IGAs. But the men’s groups that had thus far participated in the IGA loan scheme had performed poorly, with very bad repayment rates, giving little indication that this could provide an avenue for encouraging them to move out of fishing. As a result, effort in the fishery had stayed more or less unchanged since 1993 as shown in Figures 2.



**Fig. 2. Number of fishing gears counted during annual frame surveys in Lake Malombe**

*Legal provisions for co-management.* The revised Act (Department of Fisheries 1997) provides for the establishment of a 'Fisheries Management Authority' under which local-level institutions could be constituted. It also sets out conditions for the formation of the local-level institutions. It does hint at on how power would be transferred to such groups through the authority of the minister. The Act also gives local-level management groups the power to decide, with the advice of the Fisheries Department, how their fisheries management area will be managed and also have the authority to make regulations which can become enforceable by-laws through the authority of the minister's signature. After all these hints at real devolution of authority, the Act stipulates that the local-level management groups will function under the 'protection' and 'advise' of the Fisheries Department. The act might still be inadequate in some aspects. For example, at the 1997 annual review of the program, the magistrate of Mangochi advised the meeting that Village Headmen or BVCs are not authorized to collect fines even under the revised Act.

### **Lessons Drawn from the Program at this Juncture**

Co-management was supposed to bring about positive outcomes in terms of 'patterns of interactions.' What has been the experience so far and what lessons can we draw from implementation of the program so far?

#### *Problems around the Facilitatory Role of Government and the Influence this has had on the Composition of BVCs, Independent Participation of BVCs/communities*

At the beginning of the program, it was assumed that there were no suitable institutional structures existing within the communities. Thus government through the recommendation of the Bell and Donda (1993) consultancy report came up with the idea of BVCs as representative bodies for the fishing communities. In addition to inventing the BVC concept, government facilitated the election and training of the BVCs. This role of government as facilitator in initiating and mobilizing communities for participation in the new management regime had somehow been problematic. There was a general feeling within the communities that the elections and nominations for BVC members were not fair and that those elected did not get their positions on merit or wishes of the majority of the community of fishers. It was felt that most of the people elected are those who are friends or acquaintances of the Fisheries personnel or the village headmen. Because of its past role, there was pressure on government to continue with facilitation of training of newly-elected members because the impression had been created that one cannot become a qualified BVC member unless one has had training. As a result, there have been cases whereby elections for new BVCs have had to be postponed because government did not have money to train the new BVC members! The new BVC members also demanded training because of the upkeep allowances they got during training.

## *Objectives of the Main Stakeholders for Management of the Fishery*

In the main, government objectives remain attempting to ensure biological sustainability of the resource and maintaining biodiversity. In this sense, government sees co-management as an alternative strategy for controlling fishermen in the wake of mounting problems under the former regime. Thus the same existing regulations (namely mesh size, net length and closed-season restrictions) have been reformulated under the direction of government only this time with the supposed participation and support of fishermen under more ‘democratic’ and ‘transparent’ arrangements. In this context, the Department of Fisheries presented the proposed regulations to fishermen for discussion stating that “in the event of strong negative reaction to the regulations, the Department of Fisheries *may be* prepared to compromise slightly” (PFMP 1993:4) and that government would, initially, return decision-making power concerning objectives and regulations. At a later (unspecified) stage, greater input into decisions on objectives and regulations would be transferred to the fishing communities. Clearly, government appeared rather reluctant to give up its traditional role from the very outset. Government seemed to have been anxious to return the authority to have the final say on what regulations would govern the fishery.

For fishers, their main concern remained the continued economic advancement and social wellbeing. For the majority of the participants, the fishery was a source of daily subsistence in an economically-depressed area<sup>8</sup>. The goals of both fishing communities and BVCs remain geared towards short-term economic survival, which drives their time preference to immediate consumption. Whether co-management can change this and enable the fishers to take a long-time preference for the exploitation of the resource remains the main question.

The main goal for donors can be stated as being to achieve the best possible use for their funds that would result in positive social and economic outcomes for the target communities. By influencing the adoption of co-management, donors seem to believe that the subsidiarity principle being commonly applied in the west should also be applied in developing countries and that political empowerment of user communities in the resource management process would result in sustainable resource exploitation patterns and also positive economic effects on user communities. Whether western-type democracy and advocacy can work and be of benefit to management of fisheries on Lake Malombe remain the real question and a possible agenda for research. One must also ask: is the real objective to enforce participatory democracy or to achieve better resource management? It is important to note that most decisions in the communities are taken either by consensus or by the autocratic authority of traditional leaders other than through some ‘winner takes all’ democratic process.

The issue of objectives raises the question of what the short- to medium-term objectives for co-management ought to be; should it be institution building or recovery of the fishery? If co-management is seen as holding the best promise for improved management and therefore recovery of the fishery, then institution building for co-management should be taken as the short- to medium-term objective in the hope that recovery of the fishery will follow as a result of successful reform of the regime. After all, if the present prioritization of objectives does not seem to be achieving recovery of the fishery, it would be prudent to try concentrating on the reform of the regime first and see what results this brings.

## *Differing Perspectives on the Incentives for Co-management*

The government’s main incentives for co-management are reduction of “transaction costs” and to improve legitimacy of the management system. For the fisher communities, the incentives for continued exploitation of the fishery was economic subsistence while for members of BVCs the main incentives were monetary when they attend meetings and workshops. This divergence in incentives for co-management remains and since the number of meetings and workshops has declined after the initial implementation stages people are shunning away from taking up positions as BVC members, arguing that it was *thangata* (work without pay). Part of the reason for the decline in willingness of people to

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<sup>8</sup> According to UNDP (1998), formal employment in Mangochi district stood at about 22% in 1997. Formal employment is mostly to be found at the district headquarters (Boma) and along the belt of commercial holiday resorts on the west banks of the southeast arm of Lake Malawi between the boma and Monkey Bay. In rural areas such as Malombe, seasonal agriculture remains the biggest source of informal self-employment. Because of small landholdings and the price of farming inputs, most of the people farm at subsistence level making this form of agriculture unpaid.

take up voluntary positions of responsibility was the political change in Malawi from dictatorship to democracy. Whereas people could be forced to do self-help work under the former dispensation, more and more people now demand that they be paid for any work that they do. The perception that projects bring money is another aspect that makes people reluctant to do voluntary work.

### *Reduction of Partnership to that of Enforcement of Regulations*

Most of the tasks that BVCs had been asked to carry out pertain to enforcement of regulations. The main ones, as outlined in Table 1, were: collection of money for licenses and handing it over to Fisheries Department for issuance of licenses; checking of fishing gears for the legal mesh sizes and that they have been licensed; and carrying out patrols especially during the closed season. Because the tasks are confrontational in nature, there had been growing animosity towards BVCs from fishermen who transgressed. In addition, BVCs were increasingly seen as representing the Department of Fisheries and therefore an extension of its power into the communities other than bodies representing the communities. BVCs also saw themselves as doing the 'dirty' work on behalf of the Department of Fisheries. In this sense, most BVC members feel that they should be compensated for the tasks that they carried out. Broadening the partnership to become more inclusive of other issues and the community at large as a whole might be beneficial to the program. The resumption of enforcement by the department without the usual cooperation with BVCs was proving embarrassing for BVCs. BVCs felt betrayed by government and that government simply used them while all along it had never really intended to hand over this responsibility in the first place.

### *Institutional Structure – Contest for Power and Representativeness of BVCs*

The BVC model as fisher community representative bodies envisaged these as strong independent bodies, which could eventually assume delegated management responsibilities from government. The model gave village headmen presumed honorary positions on the BVCs as ex officio members. What had not been foreseen was the contest for power with the village headmen that the BVCs as new power brokers within the village setting would bring. The misconception that BVCs should have greater powers than the village headmen's traditional and customary authority and powers was a major source of conflict between BVCs and village headmen. By custom and through historical tradition, village headmen derived privileges from the fishery through their positions. For example, when a migrant fisherman came into the village he normally had to seek permission from the chief to stay and had to pay something to the chief as a token of thanks. In addition, all fishers landing their fish in his area were supposed to give him a determined amount of fish, called *mawe*, every week as honorarium. Under the co-management arrangement, incoming migrant fishermen have to seek permission from both the village headmen and BVCs. This directly infringed on the privileges of chiefs. In some cases, gear owners saw the new arrangement as a chance to cut out the customary practices, such as the giving of *mawe*, by encouraging BVCs to challenge these. The challenge on their powers and privileges had left strong village headmen with no option but to try and curb the powers of BVCs. In this context, strong chiefs such as Kadewere had disbanded the elected BVC and put in place a BVC that they could control. In many instances, village headmen had forced the replacement of members they did not like and had influenced the nomination of new BVC members of their favor. The complaint those village headmen had taken over BVCs and were using them for their own ends had, as a result, become common. In such cases, most fishers and the community as a whole felt that BVCs largely represented the interests of the village headman other than theirs.

As bodies elected by the fisher community to represent their interests, BVCs were supposed to derive their power from the community. Most BVC members felt that they derived their powers from government. By assuming Fisheries Department enforcement duties, this perception had been further strengthened, with the result that most BVCs seemed to have alienated themselves from the fisher communities they are supposed to be acting on behalf. There did not seem to be much communication between BVCs and fishers. For example, most fishers said that the BVCs did not consult them about the proposal to change the closed season. They said that the BVCs did not have the mandate from the fishers to make such a proposal. With their independence further eroded or compromised by the village headmen, the position of BVCs had become increasingly difficult if not untenable. Finding a solution to how the powers of BVCs and Village Headmen should accommodate and complement each other remains and one of the main challenges to the success of the management institutional reforms towards user participation. Improving the representativeness of BVCs to their constituency is also a very important aspect of increasing the legitimacy of the regime in the eyes of the fishers. The formation of

the Lake Malombe Fishermen's Association seems to have brought further confusion as to who should do what and who has what authority.

The introduction of co-management is a form of institutional reform. North (1990) has suggested that successful institutional change often occurs in form of marginal adjustments to old structures rather than radical innovations or total reorganization. Probably fisher community representative bodies in Malombe should have been built around the existing institutional structures. In addition, institutional reform takes time. The point here is that long-term financial support for activities under the program will be necessary if it is to be given a chance of success. By 1999, five years after launch of the program, all but one of the donor projects that funded the various components of the program had phased out leaving the cash-strapped government to continue on its own. Only the GTZ (NAMAP) project was providing support for the program although at scaled-down level since the new project area did not officially include Lake Malombe. The problem of long-term support and the continued reliance for this on outside (donor) assistance raises the crucial issue of sustainability.

One possible reason for the problems being experienced with the institutional setup for co-management is that thorough research was not done into the appropriate institutional setup. The Bell and Donda (1993) consultancy seems increasingly to have been inadequate for this task.

### *Legal Provisions for Co-management*

While the revised Act seems to make adequate provision for co-management except in the area of transferring property rights to user communities, the main challenge remains that of implementation. Nearly two years after the Act was passed, the important provision for ploughing back license money had not been implemented. In the light of most donor projects phasing out this was a very important aspect of the legislation that needed to have been implemented immediately so as to off set the problems of funding the program was experiencing.

In one instance a possible inadequacy of the revised legislation has been exposed. This concerns the legal aspect that under the revised Act, the village headmen or BVCs are not authorized to collect fines in the form of money. This highlights the fact that the revised Act might still be inadequate in giving all the provisions that the local-level institutions might require in order to carry out their assigned tasks efficiently and effectively. It was likely that further revisions would be necessary in order to improve the effectiveness of the Act.

### **Conclusion**

While all the stakeholders might share a broad common goal, the recovery and sustainable exploitation of the fishery in order to enhance the socioeconomic benefits of the user communities was not explicitly reflected in the way co-management was viewed as a strategy for achieving the goal. Co-management seemed to be a government initiative with the influence of donors through conditionalities for aid. At heart though remained the fact that government saw co-management as an alternative strategy for achieving the same old goals. The thinking seemed to be that, by coopting users into the process, while still returning the ultimate authority and control over decisionmaking, better outcomes in terms of sustainable patterns of resource exploitation could be achieved. Of crucial importance was to change fishers' time preference for exploitation of the fishery from short to long term. But poverty and lack of alternative economic opportunities for the user communities in the area drives up their rate of time preference to the point where only consumption today mattered. It is debatable whether co-management will change this. This last factor highlights the fact that sustainable exploitation of the fishery could be closely linked to the general economy of the area.

Whether the real solution lays in institutional reform of the management regime towards user participation is an important question and agenda for research. In great part though, the solution might lay outside the immediate sector as problems in the sector pertain to the general economic structure of the country with its narrow economic base, with extreme dependence on the extraction of natural resources such as fish for its economic sustenance. Broadening the economic base and widening job opportunities might be indispensable to any solutions within the sector. Thus while co-management might be one of the positive reforms, it will not be enough on its own to solve the problem of fisheries management in Lake Malombe.

The introduction of co-management should not be viewed as a short-term crisis management measure. As a form of institutional reform, it must be realized that co-management might take a long time to take root. This means that the goals or objectives and the timeframe for achieving them must be clear to all the role players. The short-term goals could best be institutional reform of the regime in the hope that this in the long term will result in change of behavior of the fishers towards sustainable exploitation patterns.

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