

Community participation in fisheries management: prospects and challenges for co-management

J. Ikwaput Nyeko

Fisheries Resources Department, P.O. Box 4, Entebbe, Uganda

Abstract

Fisheries play an important role in the economy of Uganda, contributing to foreign exchange, food security and employment. In 1998, the total fish catch landed was 217,100 metric tons of which Lake Victoria contributed 48.6%. The development of government centred management systems has led to increasing alienation of resource users and to wilful disregard of specific regulations. The realisation of the problems faced by the current management systems has led to the recognition that user groups need to be actively involved in fisheries management if the systems are to be consistent with sustainable fisheries and be legitimate. Community participation in fisheries management (Co-management) is being tried in Lake Victoria, through co-management, which is the sharing of responsibility between the government, researchers and the resource users. A study on co-management was carried in the fisher communities on Lake Victoria, Uganda in July 1999 and between October – November 2000, to assess the potential for implementing a community-based co-management approach on the fishery. Results of this study show that there is a general agreement between the staff and fisher-folk on the need to share management responsibilities. Fishers generally agreed that giving more responsibility for fisheries management to local fishermen will yield positive results in terms of control of fisheries malpractices, willingness to collect and give accurate data and compliance with regulations.

Keywords: Community participation, co-management, fisheries resources management

Introduction

The management of the fishery resources in Uganda has been the role of government vested in the Fisheries Resources Department with no input from the fisher folk. The Department is responsible for policy formulation, review of laws and regulations, fisheries extension services, monitoring, law enforcement and control. The staffs at the landings carry out extension, collect data and enforce the regulations. The rules and regulations are contained in the Fish Act 1964. Despite the Act being in operation since 1964, the fish catches and biodiversity have continued to decline. Consequently there is a growing feeling that the fisheries has been grossly mismanaged with fishermen having no respect for management laws and regulations.

It has been realized in a number of fora that there is great need to involve fisherfolk and other stakeholders in the management of the fisheries (CIFA, 1989; MAAIF,1997; UFFCA, 1998). However, there is general lack of information on the capacity, commitment and willingness of the fisherfolk to participate effectively in fisheries management and development activities. This study was undertaken in July 1999 and then followed up in October – November 2002 to study the participation of communities since the implementation of co-management under LVEMP started.

Materials and methods

Materials for this paper includes both primary data obtained through field study, secondary information collected from a number of documents both published and unpublished but documented proceedings from various community participation workshops. Literature review on co-management was carried out.

The primary data was collected covered both mainland and island landings on Lake Victoria. Rapid Rural Appraisal tools (RRA) were used. A structured questionnaire was administered to some fisher folk selected randomly in the landings visited. The large landings with settlements along the lakeshores were listed and those to be visited were randomly picked from the list

Field staffs were used as interpreters where there was language barrier and the purpose of the research was explained to both the staff and the respondents. Where the educational standard was low and to save on time for individuals filling the forms, focus group discussions were held following the same structured questionnaires for comparison purposes. A similar questionnaire was given to staff both at the headquarters and in the field. Information collected included:

- Involvement in the fishing industry
- Knowledge of the fishing industry
- Preferred future management options and management structure
- Factors which have contributed to the problems of lake Victoria fishing Industry
- Their opinion of what impact may occur if more responsibility for managing the fisheries was given to the local fishermen.
- Membership of fishermen’s organizations

Results

Involvement in the fishing industry

A total of 153 individual fisher folk respondents, 70 fishers for Focus Group Discussions (FGD) and 15 staff. The results revealed that the fisheries industry on Lake Victoria is dominated by youth most of them below 35 years of age. Table 1(a) shows age groups for fishers while Table 1(b) shows time spent in the fishery. Most fishermen live in fishing villages without adequate social facilities such as schools and health facilities. A majority of the fishermen agree that the educational standard of most fishermen is very low (Table 1(c)).

Table 1a. Employment in the fishing industry (%)

| AGE GROUP | | | | | |
|------------------|------|-------|-------|-------|-----|
| | <20 | 20-29 | 30-45 | 46-60 | >60 |
| Boat Owner | 1.1 | 29.8 | 58.5 | 10.6 | 0 |
| Boat Crew | 13.3 | 26.7 | 60 | 0 | 0 |
| Others | 0 | 42.9 | 57.1 | 0 | 0 |
| TOTALS | 4.6 | 30.1 | 58.8 | 6.5 | 0 |

Table 1b. Time spent in the fishing industry (%)

| TIME | AGE GROUP | | | | |
|-------------|------------------|-------|-------|-------|-----|
| | <20 | 20-29 | 30-45 | 46-60 | >60 |
| Full-time | 2.6 | 24.2 | 41.8 | 5.2 | 0 |
| Part-Time | 1.3 | 5.2 | 17.6 | 1.3 | 0 |

Table 1c. Rating of general fishers' educational standards (%)

| CATEGORY | EDUCATIONAL STANDARDS | | |
|-------------|-----------------------|---------|-------|
| | Good | Average | Poor |
| Boat Owners | 4.76 | 42.86 | 52.38 |
| Boat Crew | 4.54 | 40.91 | 54.55 |
| Others | 0 | 41.67 | 58.33 |

Knowledge of the fishing industry

Fishing pressure

Most fishers perceive a decline in overall catches (Table 2a). Among the fishers and fish dealers, 92.9% from FGD said the fishery is worse while 61.8% from individual respondents agreed and 93.3% of the staff shared the same view. All the three categories agreed that the major contributing factors were use of wrong fishing gears and methods, and too many boats/too much fishing (Table 2b). Some fishermen have as many as 30 boats and on some fish landings people have as many as 100 nets per boat.

Table 2a. Current state of the fishery (%)

| | As Good | Better | Worse | Not Sure |
|-------------|---------|--------|-------|----------|
| Individuals | 12.5 | 24.3 | 61.8 | 1.4 |
| FGD | 0 | 7.1 | 92.9 | 0 |
| Staff | 6.7 | 0 | 93.3 | 0 |

Table 2b. Reasons for current state (%)

| | Individuals | Focus Group | Staff |
|-------------------------------|-------------|-------------|-------|
| Too much fishing | 31.5 | 48.6 | 60 |
| Too little investment | 44.9 | 5.7 | 0 |
| Too many boats | 30.9 | 57.1 | 33.3 |
| Disappearance of some species | 41.9 | 21.4 | 53.3 |
| Use of harmful gears | 52.8 | 64.3 | 80. |
| Others | 0 | 60.0 | 0 |

Percentages are calculated from total number of respondents.

Those who said the catches were good think there was still plenty of fish in Lake Victoria and changes in quantity caught were seasonal and related to the weather conditions. Some fishers observed that they had been fishing for many years with good catch yields. Others believed the total catch could still be the same except it is being divided amongst too many boats. However, even those who said the fishery was better conceded that there was too much fishing and too many boats.

Use of harmful gears was the most cited reason for the poor state of the fishery. There was a complaint of destructive gear such as beach seines, use of poison and the new habit of tying 2-3 nets together to achieve greater effective fishing depth, which does not allow fish a chance to escape. There is also use of nets of less than 4" mesh

size and some of these are made locally at the landings. Other reasons included infestation by the water hyacinth and lack of proper monitoring by fisheries managers.

Preferred management options and structures

Following the use of destructive gear that included fish poisoning and the subsequent ban on fish export to the European market, many fishermen suffered since most of them did not have alternative employment. Most fishermen agreed that it was difficult for those already engaged in fishing industry to earn a living by doing anything else since they didn't have the knowledge of saving and therefore did not have capital to start other businesses. Most fishing crew spend most of their time in the lake and have no other skills to join alternative jobs. They believe that fishing is the only form of employment available to them and hence are opposed to the idea of restricting entry to the fishery believing everybody needs a chance to earn a living. Another strong belief was that any Ugandan is free to fish in Lake Victoria. This also supports the idea that many fishermen acknowledge there are too many boats and nets on the lake contributing to the decline in catches per net.

There is also indication of crowding in the fishing grounds as everybody tries to go to those areas with good catch. From the responses given, 21.2% said the crowding was a lot, 61.8% said there was some but not much while 17% said there was none.

Table 3 shows that fishermen are inclined to regard positively the management measures that are already in place. The current management measures in use include gear regulations and minimum size of Tilapia and Nile perch allowed to be landed. Gear regulations were found favorable and they felt that the minimum mesh size should be increased to 6 inch. Others wanted beach seines to be allowed but their mesh size to be regulated. Limitation of vessels and gears was favored by individuals especially those who were educated and understood the impact of too much fishing pressure. However, they suggested that limitation should be on number of boats and nets allowed per person. Closed area was rated high among the FGD. Focus group participants had a chance to learn from older fishermen the existence of closed fishing areas in Tanzania where it is being used as one of the management measures. Also those who emigrated from Lake Albert recalled that the closed areas existed and were good for conservation purposes. Fishers opposed closed seasons arguing that there was no improvement in fish catches when the lake re-opened following the ban on fishing during the fish poison problem.

Table 3. Preferred future management options (%)

| | Closed Area | Closed Seasons | Gear Regulations | Limited Vessels/gear | Others |
|-------------|--------------------|-----------------------|-------------------------|-----------------------------|---------------|
| Individuals | 10.2 | 3.9 | 64.8 | 20.3 | 0.8 |
| FGD | 65.7 | 0 | 34.3 | 0 | 0 |
| Staff | 20 | 6.6 | 26.7 | 46.7 | 0 |

As far as management structures are concerned, results from Focus Group Discussion indicate that 85% preferred a management structure of equal partnership between

Government and the fisher folk organizations. Responses from individuals indicate 42.7% want fishermen’s organizations to take over management and be advised by Government while 35.9% preferred equal partnership (Table 4). Results from FGD are more indicative because participants had a chance to discuss disadvantages and advantages of each option. However, those groups, which opted to have government continue with the responsibility of management, reasoned that most of the current Landing Management Committee members are corrupt and it was difficult to trust fishermen to police themselves. Some agents for the factories interviewed preferred to have the fishermen’s organizations take over management arguing that government officials have failed and field staffs are vulnerable to corruption.

Table 4. Preferred Future Management Structure (%)

| | Government | Fishermen’s Organizations | Partnership |
|-------------|-------------------|----------------------------------|--------------------|
| Individuals | 21.4 | 42.7 | 35.9 |
| FGD | 14.3 | 0.0 | 85.7 |
| Staff | 60.0 | 13.3 | 26.7 |

On the other hand, 60% of the staff interviewed preferred to continue with Government as managers but this time advised by fishermen’s organizations, while 26% preferred equal partnership. This shows that Staff still don’t trust the fisherfolk to be capable of taking on management responsibilities.

Responsibility for future management

The idea of co-management was welcomed by a majority of people. There is a general feeling among fishermen that there is need for them to participate in management issues. They reasoned that fishermen know each other and since they live with each other, they are in a better position to carry out some of the duties like law enforcement and monitoring. Some fishers even think they know better how much fish is in the lake and can advise better on stocks and allowable catch than fisheries managers who sit in the office. Their argument is that they spend most of their time on the water, they know fish movements and good fishing grounds. Table 5 gives their views on who should be responsible for what activity.

Table 5. Preferred Responsibility for Future Management (%)

5a. Individual Responses

| | Fish. Dept. | FIRRI | District | Fishers Org. |
|-----------------------------------|--------------------|--------------|-----------------|---------------------|
| Stock Assessment | 31.2 | 38.9 | 0.8 | 28.1 |
| Determining Total Allowable Catch | 35.3 | 28.6 | 2.5 | 33.6 |
| Determining Management Measures | 52.0 | 10.6 | 5.7 | 31.7 |
| Enforcement of Regulations | 29.6 | 3.2 | 18.4 | 48.8 |
| Licensing Fishing Activity | 50.8 | 0.8 | 30.0 | 16.4 |
| Monitoring and control | 42.4 | 12.8 | 11.2 | 33.6 |
| Quality Assurance | 61.6 | 25.6 | 0.0 | 12.8 |
| Fish Price Control | 12.8 | 4.3 | 2.6 | 83.3 |

5b. Focus group discussion

| | Fish. Dept. | FIRRI | District | Fishers Org. |
|-----------------------------------|--------------------|--------------|-----------------|---------------------|
| Stock Assessment | 0.0 | 100 | 0.0 | 0.0 |
| Determining Total Allowable Catch | 35.7 | 28.6 | 7.1 | 28.6 |
| Determining Management Measures | 35.7 | 0.0 | 7.1 | 57.2 |
| Enforcement of Regulations | 30.0 | 0.0 | 0.0 | 70.0 |
| Licensing Fishing Activity | 42.8 | 0.0 | 28.6 | 28.6 |
| Monitoring and control | 64.3 | 5.7 | 0.0 | 30.0 |
| Quality Assurance | 42.9 | 5.7 | 0.0 | 51.4 |
| Fish Price Control | 37.1 | 0.0 | 5.7 | 35.7 |

5c. Staff

| | Fish. Dept. | FIRRI | District | Fishers org. |
|-----------------------------------|--------------------|--------------|-----------------|---------------------|
| Stock Assessment | 25.0 | 75.0 | 0 | 0 |
| Determining Total Allowable Catch | 23.5 | 64.7 | 0 | 11.8 |
| Determining Management Measures | 56.3 | 37.5 | 6.2 | 0 |
| Enforcement of Regulations | 52.9 | 0 | 29.4 | 17.7 |
| Licensing Fishing Activity | 64.7 | 0 | 29.4 | 5.9 |
| Monitoring and Control | 77.8 | 0 | 11.1 | 11.1 |
| Quality Assurance | 81.3 | 0 | 6.2 | 12.5 |
| Fish Price Control | 7.1 | 0 | 14.3 | 78.6 |

From the results, there is a general preference among both the individual respondents and FGDs for fishermen's organizations to take over the responsibility of enforcement while the Fisheries Department should remain responsible for monitoring, control and quality assurance. Licensing is an activity that could be jointly done by the Fisheries Department, the District Administration and the fishermen's Organization. Determination of total allowable catch could be jointly done by the Fisheries Department, Fisheries Research and the Fishermen's Organization while stock assessment can be done by Researchers in collaboration with the Fishermen's organizations.

There was a general feeling among fishers that giving more responsibility for fisheries management to local fishermen will yield positive results in terms of control of law breakers, reducing the level of immature fish catches, willingness to give accurate data, compliance with regulations and solving problems among fishermen. Tables 6.1, 6.2 and 6.3 present the results from the three groups.

Table 6. Effect of giving more responsibility to local fishermen (%)

6a. Individuals

| | Good | Bad | None | Not Sure |
|------------------------------------|-------------|------------|-------------|-----------------|
| The Control of Law Breakers | 65.2 | 26.5 | 5.3 | 3.0 |
| The Level of Immature Fish Catches | 56.2 | 37.7 | 3.8 | 2.3 |
| Willingness to give accurate data | 52.7 | 24.0 | 7.8 | 15.5 |
| Compliance with regulations | 68.2 | 20.9 | 3.9 | 7.0 |
| Solving problems among fishermen | 80.6 | 9.3 | 5.4 | 4.7 |

6b. Focus Group Discussion

| | Good | Bad | None | Not Sure |
|------------------------------------|-------------|------------|-------------|-----------------|
| The Control of Law Breakers | 78.6 | 21.4 | 0 | 0 |
| The Level of Immature Fish Catches | 92.9 | 7.1 | 0 | 0 |
| Willingness to give accurate data | 78.6 | 21.4 | 0 | 0 |
| Compliance with regulations | 71.4 | 7.1 | 0 | 21.4 |
| Solving problems among fishermen | 100.0 | 0 | 0 | 0 |

6c. Staff

| | Good | Bad | None | Not Sure |
|------------------------------------|-------------|------------|-------------|-----------------|
| The Control of Law Breakers | 53.3 | 13.3 | 26.7 | 6.7 |
| The Level of Immature Fish Catches | 33.3 | 40.0 | 20.0 | 6.7 |
| Willingness to give accurate data | 26.7 | 40.0 | 20.0 | 13.3 |
| Compliance with regulations | 33.3 | 26.7 | 33.3 | 6.7 |
| Solving problems among fishermen | 80.0 | 6.7 | 6.7 | 6.7 |

Fishermen were very positive on achieving better management success since they know each other and fishermen will respect laws that are implemented by fellow fishermen. However, some were very skeptical arguing that their leaders will equally be corrupted and since those elected to leadership are the more influential persons and also often the wrong doers, giving responsibility to fishermen will yield bad results. They prefer leaving the responsibility with the Fisheries Department. Many wondered how they would be able to coordinate what goes on in other parts of the lake. Leadership is a problem and in the past cooperative attempts failed due to lack of proper leadership, embezzlement, lack of proper mobilization and lack of support from the government. Therefore, a lot of effort is needed if co-management is to work. Government should mount sensitization to teach fishermen new regulations, and fisheries conservation.

Factors contributing to the problems of Lake Victoria fishery

From the responses, there is some indication of the factors contributing to the problems of Lake Victoria, although respondents seemed to differ and most of them indicated more than one option (Table 7). The major contributing factors was insufficient penalties cited at 31.8% by the fishers. From the results in Table 7, the Crew and FGD rated lack of conservation highest problem.

Table 7. Perceptions on factors contributing to the problems of Lake Victoria Fishing Industry (%)

| | Boat Owners | Crew | Others | FGD | Staff |
|-----------------------------------------------------------------|--------------------|-------------|---------------|------------|--------------|
| Fishermen have no say in management | 55.3 | 44.4 | 64.3 | 62.9 | 6.7 |
| Fishermen's knowledge not used to formulate management measures | 60.6 | 48.9 | 35.7 | 48.6 | 6.7 |
| Fisheries regulations don't suit local conditions | 47.9 | 48.9 | 20.0 | 27.1 | 13.3 |
| Insufficient penalties | 66.0 | 66.7 | 35.7 | 62.9 | 46.7 |
| Fishermen not free to report law breakers | 46.8 | 51.1 | 35.7 | 35.7 | 20 |
| No sense of conservation | 57.4 | 71.1 | 35.7 | 72.9 | 20 |
| Other factors | 36.2 | 13.3 | 0 | 64.3 | 0 |

Percentages are calculated from the total number of respondents.

Awareness of rules and regulations (Fish and Crocodiles Act 1964) is not high among the fisherfolk. Most of the fishers are youths below 35 years of age and most of them have been in the fishing industry for less than 10 years. They have not been exposed to the rules and regulation and more so the reason why those regulations were put in place. Some of them have come to know beach seines are not allowed because of the arrests made by staff. However, they don't know the impact the seines have on the fishery. Fisherfolk agreed that many fishers do not have sense of conservation and only think of "food for today". There was also a feeling that those using poison are not the genuine fishermen but people who want to make quick money.

Previously, fishermen were not free or did not care to report those who break laws because it created enmity among them but with the creation of Fish Landing Management Committees, the fishermen are now very free to report law breakers and the use of poison is vigilantly monitored by all fishermen. Major causes of the fishers behavior cited by fisher-folk included: Poverty, ignorance due to lack of sensitization, lack of information, and high illiteracy rate; lack of fishermen's organizations through which to voice their concerns; and nomadic life of fishermen.

Community based organizations

Majority of fisherfolk operate as individuals and there are very rudimentary forms of organizations or associations existing and these are not registered. Out of the 30 fish landings visited during the period October- November 2000, only 7 had organized groups. These groups were at varying stages of stability and none was registered in spite of the fact that some had existed for as long as 10 years. Some of the groups were formed after their head fishermen or those members who attended some of the Socio-economics sub-component workshops went back and informed their communities that every landing was required to form a group and open up a bank account. Groups were hurriedly formed and accounts opened but no form of financial assistance has come from LVEMP and this has led to discouragement.

The communities in all the landings visited were non-homogeneous. Main problem why there are no viable groups is lack of sensitization on need for groups and how to run the groups. In some cases there was lack of leadership. Another problem is that fishermen lack trust amongst the community residents.

Findings from workshops

Workshops were conducted and attended by representatives from all the ten districts of Lake Victoria. In all these workshops there was general agreement on need for community participation in fisheries management bearing in mind that they interact with the resource daily and know those within their communities. However, some questions were raised:

- a) How will government enforce its laws on fishermen who are now expected to mobilize their own financial resources to manage the lake?
- b) How co-management shall overcome LC bureaucracy and use of firearms in fishing?
- c) How shall co-management get powers to arrest and prosecute wrong doers?
- d) How is monitoring of co-management to be done?

Main issues raised by workshop participants included the following:

- Few fisheries staff on the ground
- Inadequate coordination between fisherfolk and staff
- Illegal gears and methods
- Free entry to the fishery
- Roles and powers not well defined in the Act
- Lack of patrol boats
- Landing task force members are now abetting catch and sale of immature fish
- Presence of numerous security organs on the lake with difficulty in differentiating who is doing what
- Too many ungazetted fish landing sites which makes it difficult to monitor
- Migration of fishers making registration difficult and registration has no legal backing
- Effectiveness of landing management committees is limited
- Political interference in fishing gears
- Lack of harmonization of management measures across the districts
- In community participation there is option of “no action”

Discussion

Co-management

In its definition, fisheries co-management is the sharing of the management responsibility between government institutions and the resource users.

Currently, government is still the centre of fisheries management. The new approach now should be co-management, where the resource users together with government share the responsibility for managing the resource for sustainability. In co-management, local organizations clearly define and share specific management responsibility and authority. By working together with the government, all the tasks related to resource management could be addressed.

There is lack of written community rights on control and enforcement of instituted measures by the Beach Management Units (BMUs) under the current co-management arrangement being tried. There is also lack of co-ordination and harmonization of the control and management measures by the districts.

Fishermen are eager to participate as seen from the results of the fieldwork where 85% from FGD and 35.9% from individual responses preferred equal partnership while 42.7% of individual responses reflected the wish to have fishermen's organizations take over management with government acting in advisory capacity. The same interest has been echoed in a number of community participation workshops. What remains is to work out clear structure of how to share the responsibilities between government institutions and the resource users.

In co-management, fishermen's views are represented through fishermen's organizations or equivalent institutions. Fisherfolk need to organize themselves into groups and be willing to work collectively to get their voices heard.

Conditions for successful co-management

Community-based management in fisheries has been documented around the world over the last decade and the on-going research by a number of social scientists has revealed some conditions that appear to be central to the chances of developing and sustaining successful co-management agreements. Ostrom, (1990) and Pinkerton, (1989) have identified some emerging conditions for successful co-management and they believe that the more the number of these key conditions that exist in a particular situation or system, the greater the chance for successful co-management.

Some key conditions for successful co-management would include the following:

- i) *Clearly defined boundaries:* The physical boundaries of the area to be managed should be distinct so that fisher groups can have accurate knowledge of them. The boundaries should be based on an ecosystem that allows for management with available technology, i.e. transportation and communications.
- ii) *Membership is clearly defined:* The individual fishers or households with the rights to fish in the bounded fishing area and participate in area management should be clearly defined. The numbers of fishers or households should not be too large so as to restrict effective communication and decision making.
- iii) *Group cohesion:* The fisher group or organization permanently resides near the area to be managed. There is a high degree of homogeneity, in terms of kinship, ethnicity, religion or fishing gear type, among the group. Local ideology, customs and belief systems create a willingness to deal with collective problems. There is a common understanding of the problem and of alternative strategies and outcomes.
- iv) *Existing organizations:* The fishers have some prior experience with traditional community-based systems and with organization, where they are representative of all resource users and stakeholders interested in fisheries management.
- v) *Benefits exceed costs:* Individuals have an expectation that the benefits to be derived from participation in and compliance with community based management will exceed the costs of investments in such activities.
- vi) *Participation by those affected:* Most individuals affected by the management arrangements are included in the group that makes and can change the arrangements. The same people that collect information on the fisheries make decisions about management arrangements.
- vii) *Management rules are enforced:* The management rules are simple. Monitoring and enforcement can be effected and shared by all fishers.
- viii) *Legal rights to organize:* The fisher group or organization has the legal right to organize and make arrangements related to its needs. There is enabling

legislation from the government defining and clarifying local responsibility and authority.

- ix) *Cooperation and leadership at community level*: There is an incentive and willingness on the part of the fishers to actively participate, with time effort and money, in fisheries management. There is an individual or core group who takes leadership responsibility for the management process.
- x) *Decentralization and delegation of authority*: The government has established formal policy and/or laws for decentralization of administrative functions and delegation of management responsibility and/or authority to local government and local group organization levels.
- xi) *Coordination between government and community*: A coordinating body is established, external to the local group or organization and with representation from the fisher group or organization and government, to monitor the local management arrangement, resolve conflicts, and reinforce local rule enforcement.

The principles of community based co-management

Some of the basic principles of community Based Co-Management include the following:

- i) The delegation of authority from governments to community co-management Committees.
- ii) Representatives of the fishing industry in the local community are the primary participants on the community committees.
- iii) Leaders of community groups and institutions are participants on the community committee.
- iv) Committee members are accountable as a body to the local community.
- v) The committee will make every effort to govern by consensus.
- vi) Committee decisions will take into consideration the sustainability of the industry and the community, and will also address social, economic and ecological factors.
- vii) Industry, community and government as decided by the government and the committee will share financial responsibilities and/or rewards for co-management.
- viii) Committee members will participate in open and transparent communication.
- ix) All available information in the industry will be available to all committee members.
- x) Training and/or education will be made available to stakeholders as required for their full participation.

Community and institutional design

In implementing co-management, there will be a need to identify who is the community that is to participate. It is important to define the community, the focus and scale of the community and how the various groups within the affected

community are represented. Co-management requires functional communities, with characteristics, which are conducive to co-operation.

Not every fisher-folk will be directly involved in decision-making and implementation. They will have to elect their representatives who will speak for them. There will be different categories that are directly affected by changes in the fishery, namely: the fishers, fish traders, artisanal processors, industrial fish processors, consumers and the environmentalists.

If co-management initiatives are to be successful, basic issues of government legislation and policy to establish supportive legal rights and authority frameworks must be addressed. The establishment of an appropriate government administrative structure and an enabling legal environment are essential in efforts to promote and sustain existing local-level fisheries management system and/or to develop new co-management system (Pomeroy and Berkes, 1997).

Challenges to implementation of co-management in Uganda

Socio-economic issues

Despite the advantages of co-management, there are some difficulties, which may impede the establishment of the system. "Population growth and technological change have increased pressures on natural resources to the extent that 'minimum' common property rules do not provide effective regulations. Local institutions, weakened by far-reaching economic and political changes, are unlikely to impose intensive controls, especially where there is little precedent for direct regulation. Local common property management will not emerge simply by giving greater official rein to local action". (Baland and Platteau, 1996:287). Effective local-level management is impossible without the existence of institutions and mechanisms suitable for achieving consensus among fishermen participating in the fishery.

Fishermen's organisations

There are very few fishermen organisations and most of the existing ones are not viable. Most fishermen do not have the experience of belonging to an organization and the record of the two main existing organizations (UFFCA and UCFU) is poor on the ground.

Fishermen join organizations with hope of quick gains in terms of free fishing inputs and other benefits. They want to receive but not to give. This is a stumbling block, which can only be removed with concerted effort in education and sensitization. Fishermen should be made to understand that these organizations are a voice for their contributions towards building a better fishery, which is acceptable to all users.

Sustainable funding

The introduction of community-based co-management undoubtedly requires extra financial resources. One of the principles of community based co-management is, it requires sufficient staff and financial resources to support the process. The central

government, local government and community participants should make financial support for fisheries management activities and for the co-management teams, committees, etc., available. Even where Landing management committees have been put in place, they are starting to relax and most of them expect to be paid a government salary for community work they are doing. The perception that the resource is government's property and as such it is government's responsibility to protect it is still hanging over the people.

Legal provisions

The old Fish and Crocodile Act did not have provision for Community involvement in fisheries management activities. The Fisheries Resources Department under Lake Victoria Management Project has started the co-management approach. The fisherfolk from selected landings have been sensitized through workshops on co-management principles and Landing Management Task Forces have been launched in pilot landings in all the districts of Lake Victoria. There is need for commitment from all sections of government i.e. political, Central and Local governments.

Community based resource management is a new concept in the fisheries industry and it will take time for the fisherfolk to appreciate their full responsibility. The fisherfolk of Lake Victoria are very enthusiastic about participating but because of the rampant lake piracy armed people using illegal gears on the lake many fisherfolk don't have confidence yet. Influential people who are often lawbreakers get elected to landing management committees, eventually compromising the enforcement of regulations. Political considerations can seriously threaten the viability of co-management

Basic issues of government legislation and policy to establish supportive legal rights and authority frameworks must be addressed.

Open access policy

The current policy of "open access" is not conducive for co-management as it makes it difficult to enforce cooperation and agreed upon rules because of the "free-rider" problem. Also migration of fishermen makes collective community action difficult. Government will have to do away with the "open access" and shift to "common-property" resources held by the state with an identifiable group of users. Resources held by users in common can be withheld by other members through a group decision and can thus be employed as a sanction against users who break the rules

Recommendations

The following are suggested recommendations for future action:

- Concerted effort at sensitization targeting all levels of stakeholders from district to community on principles and advantages of co-management is needed.
- Basic training in fisheries management, book keeping and business skills should be provided to the fisherfolk if they are to be able to diversify their economic activities and pull out of perpetual poverty.
- Policy on "open access" needs to be reviewed
- Set up management structures with clearly defined roles

- Agree on funding mechanism with contribution from Central government, local government and communities to sustain co-management activities.
- Formation of fisherfolk organizations will have to be carried out as part of the process to develop co-management.
- Sufficient and reliable information is needed for successful co-management and it should be made available to all participants.
- Fish Act should be reviewed in consultation with fisherfolk communities if the laws are to be acceptable and enforceable.

References

Baland, J.M. & Platteau J.P, 1996. Halting Degradation of Natural Resources – Is there a Role for Rural Communities?. *Food and Agricultural Organisation of the United Nations*. Clarendon Press Oxford.

CIFA, 1989. Socio-Economic Issues for Planning in Support of Fisheries Management. Development and Management of Lake Victoria Fisheries: *Deliberations of the CIFA Meeting, Mwanza, Tanzania, September, 1989*.

MAAIF, 1997. Report of the Fisher-folk Sensitisation Workshop held at Mukono District Farm Institute, 6th –7th December, 1996.

Ostrom, E., 1990. Governing the commons: The evolution of institutions for collective action. New York: Cambridge University Press.

Pinkerton, E.W., 1989. Introduction: Attaining Better Fisheries Management through Co-management. Prospectus, Problems & Propositions. In: *Co-operative Management of Local Fisheries: New Directions for Improved Management and Community Development*. (E. W. Pinkerton, ed.). Vancouver: University of British Columbia Press, pp: 3-33.

Pomeroy, R. S. & Berkes, F., 1997. Two to tango: the role of government in fisheries co-management. *Marine Policy*, Vol. 21 No. 5, pp. 465-480.

UFFCA, 1998. Workshop Report on Fishing Community Workshop for Lake Victoria – Eastern Region organized by UFFCA and held at Iganga Council Chambers, 1st October, 1998. Prepared by UFFCA Secretariat.