Training of Beach Management Units

BMU Fisheries Management Manual

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1. INTRODUCTION

1.1 Background

A new Statutory Instrument, *the Fish (Beach Management) Rules 2003,* provides legal empowerment of Beach Management Units (BMU) for fisheries planning and management in partnership with local governments. The new law and its accompanying national *Guidelines for Beach Management Units in Uganda 2003*, set out the roles and responsibilities of BMUs and their committees, requiring new skills in a range of areas. One of the key functions of BMUs is community-based planning. However, to turn plans into actions, BMUs must influence funding allocations, and therefore their plans must be integrated into local government development plans.

The training of BMU Committee members is one approach used by Government to build the capacity of BMUs to effectively contribute to the improved planning and management of fisheries resources as an integral part of local government development planning. With support from the Integrated Lake Management project, training is being given to 206 BMUs on lakes George, Kyoga and Edward on the following topics:

Module 1: Orientation of BMU committee members.
Module 2: Basic book keeping and accounts.
Module 3: Fisheries management.

Module 1 was delivered in December 2003 and Module 2 started in January/February 2004. The manual for Training Module 3 takes into account several key elements of these previous courses, and where needed, reiterates important topics as refresher training to trainers and BMU members. The manual is based on the statutory functions of BMUs outlined in the Fish (Beach Management) Rules 2003 and national BMU Guidelines. Its structure and content are shaped by a fisheries co-management approach promoted in the National Fisheries Policy and supported through the draft national Fisheries Sector Strategic Plan (FSSP). The manual also draws on international experience through the Code of Conduct for Responsible Fisheries (CCRF) published by the Food and Agriculture Organisation (FAO) in 1997, a voluntary international code to which Uganda is a signatory. The manual takes into account existing fisheries management plans on lakes Victoria and George and a plan under development on Kyoga. It takes into account the management skills required to implement these plans, and to develop and implement plans on other water bodies in Uganda.

1.2 Scope and Objectives of Manual

This manual is for trainers to run a decentralised 5-day training course for members of BMU Committees and the BMU member directly responsible for the regular collection of fisheries data. The trainers must have professional experience in fisheries management. These professionals are drawn from fisheries officers operating within local district and sub-county governments.

The manual covers the management of capture fisheries defined in the CCRF as "the removal of aquatic organisms from natural or enhanced inland waters". The manual mainly focuses on lake fisheries and their adjacent wetlands that have reasonably clear geographical boundaries for resource management. Whilst the manual does not specifically address the stocking of waters to create culture-based fisheries in reservoirs and lakes, the resource management guidelines contained in the manual can, in many cases, be applied to the subsequent exploitation of these enhanced fisheries.

The course is designed to deliver improved understanding and capability of local government officers and BMU members in the following areas:

1. Operating within national policy and laws, and effectively utilising delivery of services from the centre;
2. Setting up local management institutions within which government and communities work in partnership to co-manage fisheries resources;
3. The options to achieve sustainable funding of local management institutions;
4. The need to take a broad-based, integrated approach to managing fisheries as part of wider environmental management;
5. Setting fisheries management objectives in accordance with national policy and plans and based on locally prioritised technical, social and economic aims;
6. Collecting, analysing and using fisheries information in decision making processes of planning and management of capture and post-harvest fisheries;
7. The technical, environmental, social or economic reasons underpinning existing fisheries management regulations;
8. The relevance of additional locally made regulations through bye-laws and ordinances;
9. Operating monitoring control and surveillance programmes to enforce fisheries regulations;
10. Adopting procedures and developing interventions to improve safety, hygiene and health on water and land;
11. The need to routinely monitor the performance of management institutions and the impacts of management plans.

1.3 Broader Aims of Training BMUs

This training course is for three members from each BMU only. Other BMU members will rely on those who attended this course to help them gain the same level of understanding and knowledge.

There are several reasons why it is essential that participants take the training back to their BMUs:

- Participants are attending training as representatives of a BMU. They therefore have a responsibility to ensure the knowledge and skills they gain are shared with other BMU committee members and ordinary members.

- This sharing will help to build the capacity of other BMU Committee members and ordinary members, particularly potential BMU data collectors.
- Spreading knowledge and skills to other BMU members will help to ensure that the BMU continues to work well even when people leave the BMU committee.
- Having a wider understanding within the BMU of why and how to develop and implement a management plan will help improve the overall effectiveness of the plan.

The training manual issued to BMUs during this course adds to the two previous training manuals and to the BMU Guidelines. All these documents must be stored safely, so that they remain in good condition and can be referred to by all members. This is particularly important for new members to the committee.

To ensure that a BMU Committee operates effectively, and to help build the capacity of those who did not attend this training, those in responsible positions should occasionally deputise other committee members to take over from them so that more than one person understands the tasks of a particular position (that is, work with them so that another person comes to understand the job).

This is important in building the sustainability of the Committee as members may have to leave and new members join the Committee. The prevalence of HIV/AIDS in fishing communities adds urgency to building the sustainability and capacity of the Committee. Not only may members of the Committee fall ill, but they may have caring responsibilities that may make their effective participation impossible. The impacts of HIV/AIDS make the need for good documentation and sharing of training opportunities essential to build capacity and sustainability of BMUs.

2. KEY STEPS IN FISHERIES MANAGEMENT

This chapter sets out a simplified summary of the broad steps that should be taken when managing fisheries resources in Uganda. The details of each step will vary depending on the nature of the fisheries to be managed. These vary widely from a small lake in a single sub-county to the enormous Lake Victoria shared by three different countries, and from man-made reservoirs to large rivers and wetland fisheries. These key steps in fisheries management are covered in more detail in the following chapters of this training manual.

Steps:

1. **Understand relevant institutional, policy & legal frameworks:** DFR and local governments should issue each BMU with a copy of the new National Fisheries Policy and all relevant fisheries legislation. The Wetlands Inspection Division and local governments should issue each BMU with a copy of the National Wetlands Policy and all relevant wetlands legislation.

2. **Build a co-management institutional framework:** BMUs being established on all major lakes. Lakes George and Kyoga have established lake wide integrated management organisations named LAGBIMO and LAKIMO respectively. Wetlands Management associations and Water User Groups need to be formed, strengthened and incorporated into lake wide management organisations.

3. **Agree roles & responsibilities within institution:** Roles of BMU members and committees outlined in statutory instrument and national BMU Guidelines. Roles and responsibilities of lake wide organisations outlined in their respective constitutions.

4. **Agree links of institution to other stakeholders:** Links and relationships of BMUs and lake wide organisations outlined in Guidelines and constitutions.

5. **Acquire legal mandate for planning & management:** BMUs have delegated legal authority of the Chief Fisheries Officer for planning and managing fisheries resources and beach development and management. Lake wide organisations on lakes George and Kyoga are associations formed under the Local Government Act 1997.

6. **Develop sustainable funding mechanisms for management organisations:** in order to survive, a management institution must secure a sustainable source of funding to cover its own operational costs and to implement its management plan.

7. **Agree how to make a management plan:** Within any management institution, whether it is a BMU or a lake wide organisation, the process for making a plan must be very clear. This involves who does what, when and how.

8. **Agree geographical scope of the plan:** The scope of the plan will be determined largely by the mandate of the organisation making it. For example, a BMU can make its own local plan, a district can develop a plan within its administrative boundary, whilst a lake wide organisation can make a plan that covers the whole lake, possibly crossing district or international boundaries.

9. **Agree management objectives, outputs and activities:** The overall management objectives should be very clear, agreed by consensus of stakeholders and in accordance with national policies and laws. The intermediate objectives or outputs, which are required to achieve the overall purpose of the plan, and the activity areas within each output, must also be clearly understood and agreed.

10. **Develop and implement an M&E system for the plan:** Any fisheries management plan must have a framework that clearly outlines who, how, and when the performance in implementing the plan and its impacts will be monitored, measured and reported. This makes up the Monitoring and Evaluation (M&E) system.

11. **Identify environmental factors that impact on fish stocks:** External environmental factors can have major impacts on fisheries. It is essential, therefore to be aware of these real or potential impacts and take them into account when developing a management plan.

12. **Develop action plans to reduce or avoid harmful environmental impacts:** Once the key environmental impacts are identified, mitigation measures to reduce harmful impacts or measures to avoid damaging impacts should be included in a management plan.

13. **Develop beach development plans:** As part of a broader management plan, there should be a component addressing service delivery at fish landing sites. A statutory obligation of a BMU is to make a beach development plan. This should cover all relevant aspects of local service delivery e.g. processing and marketing facilities, BMU offices, water and sanitation, clinics, schools, roads etc.

14. **Lobby to incorporate plans into local government development plans:** It is essential that management plan components are incorporated into local government development plans. This is the most realistic and sustainable way of implementing both a local BMU and a lake wide management plan.

15. **Identify training needs to improve management skills & include in plan:** A management organisation should incorporate in its plans, proposals to improve the planning and management skills of its members.

16. **Compile fisheries planning information and identify information gaps:** It is essential to identify what types of fisheries information are available and are being collected; information gaps need to be

identified and measures taken to fill these gaps by designing an agreed information collection system.

17. **Set up routine fisheries information collection system:** A system of collecting fisheries information each month should be set up. This should be based on Catch Assessment Surveys (CAS). The system should involve community data recorders working in partnership with local fisheries officers. Incentives for data collection should be made clear from the start.

18. **Set up access to fisheries research capability:** Not all management questions can be answered by the information from the routine CAS. Access to additional fisheries research should be established. A decentralised, participatory model of fisheries research provision has started on lakes George and Kyoga involving local fisheries officers and BMU members.

19. **Hold planning meetings to review status of fish stocks:** Planning meetings should be held by representatives of key stakeholders from BMUs and government. Meetings should focus on the current status of fish stocks to identify priority areas that need action.

20. **Examine relevance of existing legal fisheries regulations:** Using the best information available, examine existing fisheries laws to assess their appropriateness for the management of the local fishery.

21. **Where necessary, lobby for revision of existing regulations:** Using the best information available, and applying a precautionary approach to management, efforts should be made should to lobby at national level for change of existing regulations in cases where there is clearly need to do so in the best interests of management of the local fishery.

22. **Develop new local regulations through bye-laws or ordinances:** More detailed fisheries regulations should be developed, suited to local needs and agreed by stakeholder consensus, by developing bye-laws and ordinances.

23. **Ensure widespread awareness of up-dated information on fisheries management regulations:** Where changes are made to the regulations governing the management of a fishery, it is essential that this information reaches all relevant stakeholders, including all BMU members, local government officers and the centre.

24. **Develop and implement fisheries patrols to enforce regulations:** A major task is to ensure compliance with the legal regulations. This should be undertaken at different levels. Under lake wide organisations, Fisheries Management Committees oversee the operations of Monitoring Control and Surveillance (MCS) Units comprising fisheries officers, police and BMU representatives. Patrols should be undertaken in accordance with national Standard Operating Procedures.

3. INSTITUTIONS, POLICIES AND LAWS

3.1 Importance of Fisheries to Uganda

The capture fisheries sector makes significant contributions to poverty reduction and economic growth in Uganda. It does this in a number of ways. It provides a source of direct employment for 125,000 fishermen, and livelihood support for about one million people in dependent households. It generates substantial economic benefits for the country, contributing $220 million or 12% of total GDP in recent years. The export of fish and fish products contributes over $80 million per year. Fish currently ranks as Uganda's highest agricultural export earner and the considerable export revenues play an important role in contributing to overall foreign exchange earning capability. Fish is very important in nutrition and food security. It provides vital nutrients and a source of animal protein, especially to the poor. It is estimated that capture fisheries feed about 17 million people in Uganda.

3.2 Threats to Fisheries Resources

Wild fish stocks differ greatly from other renewable natural resources in Uganda. For instance, unlike agricultural crops, fish are very mobile and can move great distances, often between districts and even between countries on our international lakes. Fish are not private property. They are shared resources, belonging to no single individual but rather, belonging to the people of Uganda as a "common property resource". As wild, shared resources they are hunted and captured by thousands of fishermen all competing with each other over the same resources. This makes wild fish stocks fragile and vulnerable to excessive depletion by increasing numbers of people all trying to catch the same finite resources. Added to this is the widespread use of harmful fishing methods and gears that often catch the baby or immature fish before giving them a chance to grow and reproduce.

There are also important environmental influences that threaten the habitats of fish. Our lakes, rivers and wetlands are at the mercy of land-based activities. Farmers pour chemicals and fertilizers on to their fields, they cultivate hillsides, sometimes unwisely causing soil erosion, trees are felled leading to more erosion and industry pours out pollutants into our waterways. The products of these man-made activities – sediments, chemicals and fertilisers often end up damaging the habitats that support Uganda's rich wild fish stocks.

If these considerable threats are left unchecked, and if fish resources are left unprotected, then there is a very real danger that stocks will be reduced to a point beyond which they cannot recover. This would lead to a massive increase in rural poverty through loss of employment and incomes, a huge loss of locally produced high quality food giving rise to reduced food security and poorer nutrition, especially of rural children, and a loss of one of the top foreign exchange earners in Uganda.

3.3 Actions to Safeguard and Improve Fisheries Livelihoods

National development framework:
The Government is committed to improving the living standards of the people of Uganda, particularly its poorest people, and has developed a national *Poverty Eradication Action Plan* (PEAP) to guide the development of the country to achieve this goal. In its fight against poverty, the Government has developed and is implementing a Plan for Modernisation of Agriculture (PMA) that is shaping agricultural (and fisheries) development and a policy of decentralisation which shifts decision making from the centre to local levels in order to improve service delivery to people. As part of this shift in decision-making, the Government is promoting, supporting and guiding local development planning. There are now major efforts being made to closely involve local people in these planning processes.

Priority development areas identified by Government include education, health, water and roads but inadequate attention has been paid in the past to the very important area of natural resources. It is only during the PEAP revision of 2003/04 that the true values of natural resources and their contribution to poverty reduction and economic growth are being recognised. One of the most important natural resource sub-sectors is fisheries.

National Fisheries Policy
The Government of Uganda has developed and is implementing a new National Fisheries Policy, approved by Cabinet on 23 March 2004, which promotes poverty reduction and economic growth by deepening decentralisation processes relating to fisheries planning and management. A new co-management approach has been adopted in which fisheries communities are equal partners with local governments in managing fisheries resources. The approach is being implemented through the formation of a national network of community Beach Management Units. This is a radical move from the past approach of centralised control and command style management, which allowed little opportunity for local people to participate in planning and management. The policy has been praised as a model for other countries in Africa and beyond. The policy is being put into action through the national Fisheries Sector Strategic Plan that will be presented in its final form in the coming months.

New fisheries laws
The policy is supported by new fisheries laws, some of which are very innovative and visionary. One piece of legislation that stands out from the rest is Fish (Beach Management) Rules No.35, July 2003. This Statutory Instrument provides legal empowerment to community Beach Management Units for planning and co-management of fisheries resources. This legislation is of international significance for fisheries co-management and provides a possible model for other countries. Another important new law delegates control of access to fisheries resources from the centre to the districts and local communities, thus deepening the decentralisation of important decision-making processes. The principal legislation is currently under revision and new draft legislation will be finalised before July 2004.

New fisheries organisations

Fisheries structural reform is taking place simultaneously at three levels – village, lake wide and national, with new links between these levels. At village level, a national network of 500-700 legally empowered community BMUs is being created. This will be the largest network of civil society organisations dealing with the management of natural resources in Uganda. Its membership includes all fisheries stakeholders, women and men, poor and not so poor, boat owners, fishing crew, processors, traders and others whose total number is estimated at over 200,000 members.

At mid-level, new integrated lake management organisations have been formed as local government associations that cut across district boundaries to include whole lake ecosystems. These are essential for effective ecosystem management in which environmental threats originating from the surrounding land are addressed. They are also essential for managing fish stocks shared between different districts. One organisation has been running since May 2003, this is the Lake George Basin Integrated Management Organisation (LAGBIMO) covering 3 districts of Kasese, Kamwenge and Bushenyi. A second came into operation on Lake Kyoga in March 2004, and is known as the Lake Kyoga Integrated Management Organisation (LAKIMO) covering 10 districts, 49 shoreline sub-counties and 193 BMUs.

At national level, the Department of Fisheries Resources is in the process of transforming into a new Uganda Fisheries Authority to improve its institutional efficiency and service delivery to fisheries stakeholders.

4. BMUs & LAKE WIDE MANAGEMENT ORGANISATIONS

4.1 BMU Operations

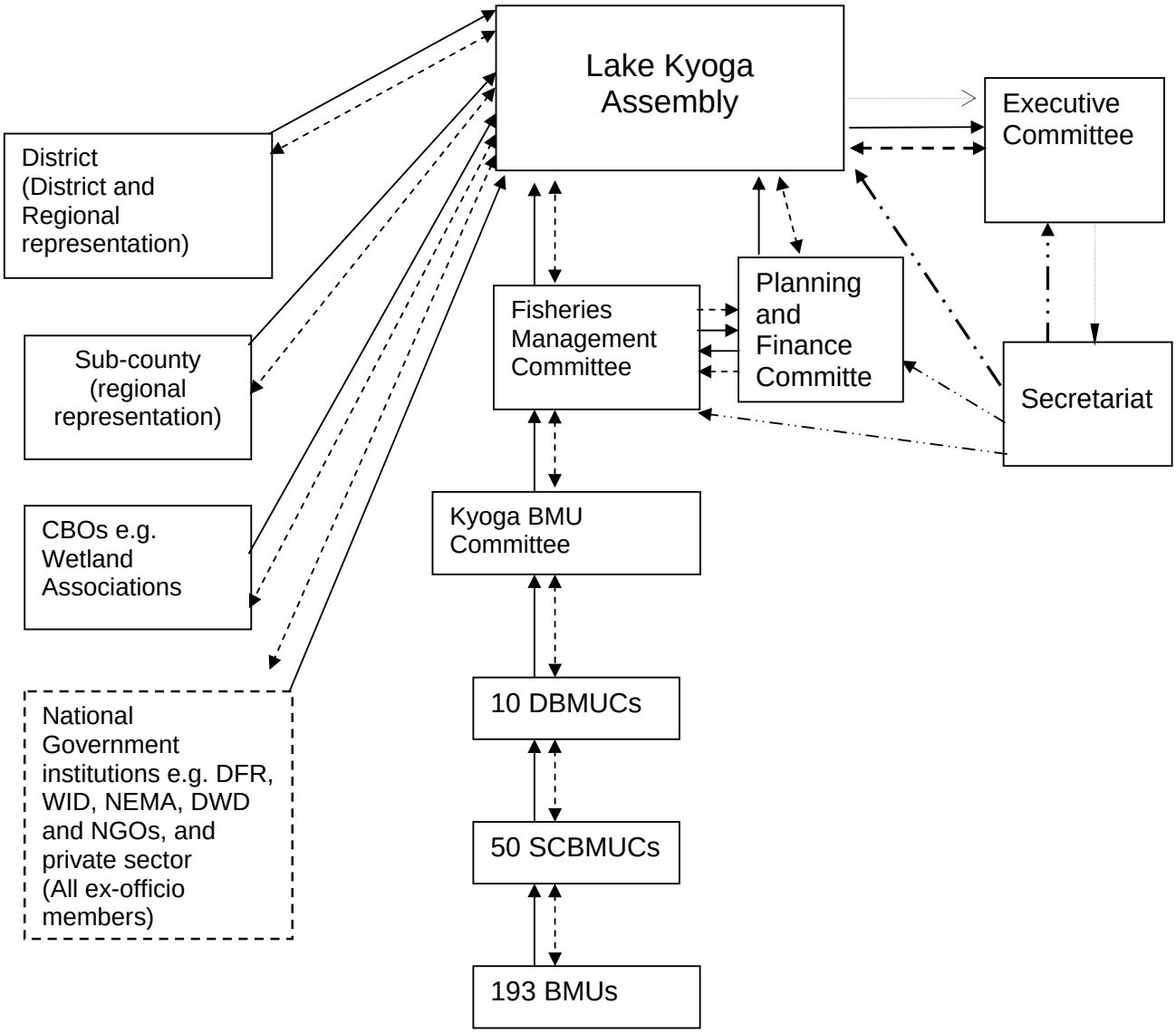
According to the national Guidelines for Beach Management Units in Uganda (page 25, step 12), "Each BMU is required to make its own Operating Procedures to govern its own local operations. A BMU will make its own Operating Procedures within three months from the date of issue of the BMU Certificate of Registration". During the BMU Training Module 1 – Orientation of BMUs, detailed guidance was given on how to develop and agree a set of Operating Procedures.

4.2 Structure of BMU Associations in Lake Wide Organisations

BMUs have delegated fisheries planning and management authority. In order to effectively manage shared fisheries resources, BMUs must communicate and cooperate with one another and with local governments. According to the BMU statute, BMUs have the legal mandate to "form higher BMUs for the purposes of developing lake wide management plans". The exact manner in which BMUs associate with one another will vary depending, to a large extent, on the number of BMUs sharing a particular water body.

Where the number is small, for example on Lake George, representatives from every BMU can associate at higher levels within the management structures of a bigger organisation such as LAGBIMO. Where the number is large, for example on lakes Kyoga and Victoria, it is not possible for every BMU to be represented at higher levels. On Lake Kyoga, under LAKIMO, the issue of representation has been addressed by forming BMU committees at sub-county, district and lake wide levels (see Figs 4.1 and 4.2).

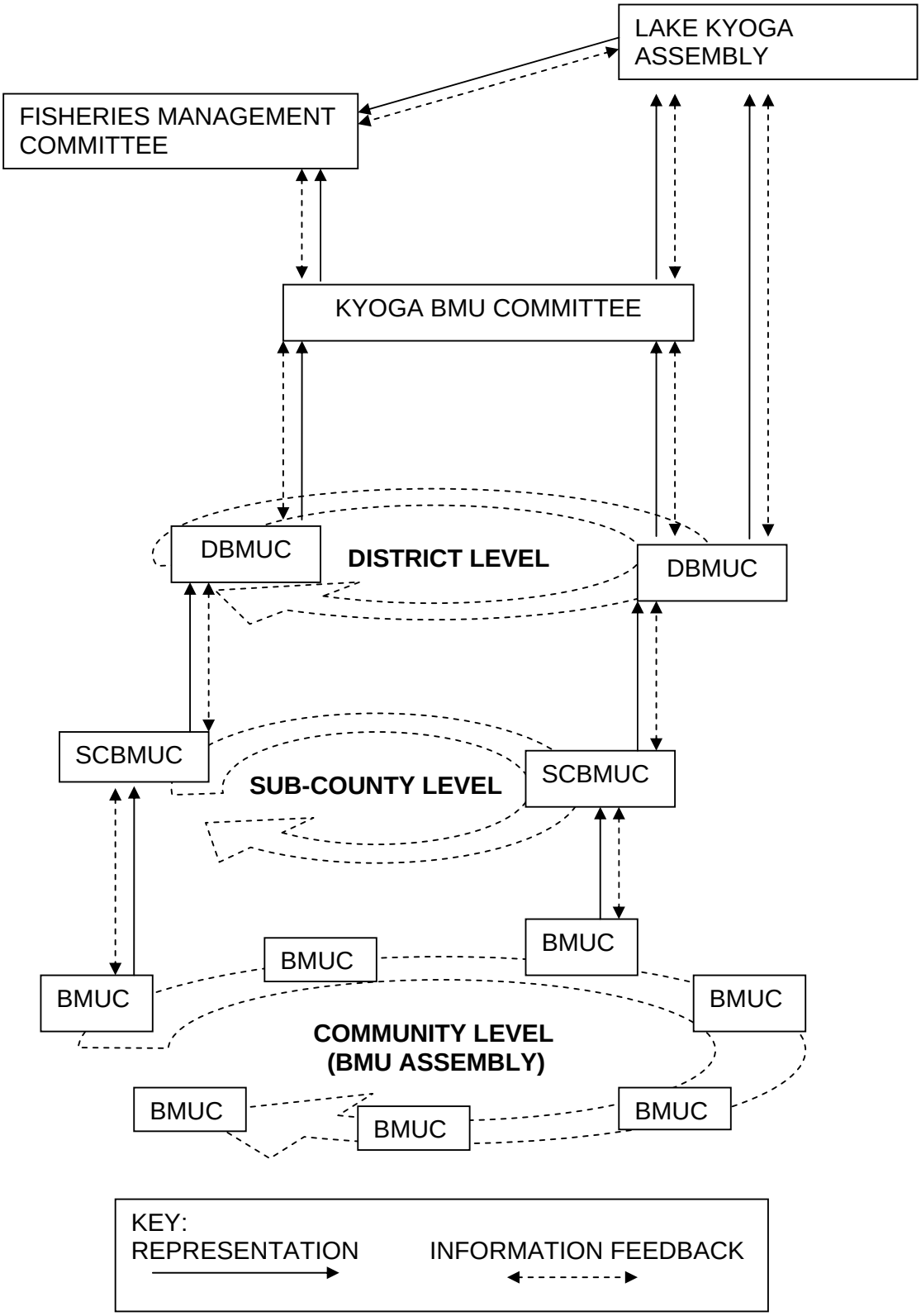
Figure 4.1 LAKIMO Structure



KEY

Representation Feedback Service Support Supervision

Figure 4.2 BMU Associations within LAKIMO



LAKIMO is founded upon almost 200 legally empowered civil society Beach Management Units (BMUs) operating at about 420 landing sites on the lake. Each BMU contains all fisheries stakeholders as members. These members have elected their individual BMU Committees in accordance with national Guidelines. The BMUs come together through elected representatives at sub-county, district and lake wide levels to form Sub-County BMU Committees (SCBMUC), District BMU Committees (DBMUC) and the Kyoga BMU Committee (KBMUC).

LAKIMO has a Lake Kyoga Assembly (LKA) that brings together representatives from BMU associations, district and sub-county local governments, relevant national government organizations, and civil society organisations. The LKA has an elected Executive Committee and two standing committees served by a Secretariat. The standing committees include the Fisheries Management Committee (FMC) and the Planning and Finance Committee.

In accordance with the LAKIMO constitution, and taking into account national BMU Guidelines, the FMC membership totals a maximum of 15 persons. There are ten BMU members on the FMC. These are from each District BMU Committee with the following stakeholder representation - 3 boat owners, 3 barias, 3 "others", 1 fishmonger. Of these ten, at least 3 are women. The other five members comprise government staff (3 District Fisheries Officers, 1 District Planner and 1 District Environment Officer).

In accordance with the LAKIMO constitution, and taking into account national BMU Guidelines, each of the ten District BMU Committees has the following membership -3 boat owners, 3 barias, 3 "others", 1 fishmonger. Of these ten, at least 3 are women. For co-management purposes, each DBMUC has ex-officio members, including DFO, DEO, District Wetland Officer and Secretary for Production.

4.3 Functions of BMU Associations in Lake Wide Organisations

The Lake Kyoga Integrated Management Organisation is used to show the range of responsibilities of BMU associations in lake wide fisheries management. These responsibilities are set out broadly in the LAKIMO constitution and, in more detail, in the agreed Terms of Reference of each association. In the following two sections, the responsibilities of BMU members operating with government representatives within the LAKIMO Fisheries Management Committee are first described, followed by the responsibilities of a District BMU Committee. The Sub-county BMU committees have a similar set of responsibilities to those of the DBMUC. The Kyoga BMUC is incorporated within the FMC and operates solely within this structure for the purpose of co-management.

4.3.1 LAKIMO Fisheries Management Committee

The FMC leads all activities relating to lake wide fisheries planning and management. Key activities are summarised below.

1. It is responsible for supporting the development and operation of fisheries information collection by BMUs, ensuring that fisheries information from BMUs is compiled and analysed on a monthly basis.
2. It uses this information on a quarterly basis to review the status of the fishery, identify priority issues to be addressed and develop agreed actions to address these issues.
3. It also ensures that priority fisheries management issues identified at LKA meetings are appropriately addressed.
4. It assists in the formulation of the Lake Kyoga Management Plan by developing a Lake Kyoga Fisheries Management Strategy in accordance with the prevailing national fisheries policy and legislation.
5. The FMC designs and organises an appropriate programme of monitoring, control and surveillance to be undertaken by LAKIMO MCS Units to reduce harmful, illegal fisheries practices on water and land.
6. It identifies areas of research needed for fisheries management and includes in quarterly budgeted work plans the commissioning of local advisory service delivery by the LAKIMO Fisheries Research Unit and other relevant research service providers, to respond to these needs;
7. The FMC assists in the development of proactive roles of BMUs and local governments for improved fisheries licensing.

4.3.2 LAKIMO District BMU Committee

The DBMUC assists the FMC in leading all activities relating to lake wide fisheries planning and management. Key activities are summarised below.

1. Compile information on BMUs and their agreed areas of jurisdiction in the district; compile monthly fisheries catch, fishing effort, and marketing information from SCBMUCs, make it accessible to the LAKIMO FMC and government agencies;

2. Compile and synthesise prioritised management issues identified by SCBMUCs and incorporate them into a district fisheries management plan in consultation with local government and SCBMUCs, and ensure dissemination of plans to all SCBMUCs and upwards to FMC;

3. Submit a quarterly report to the LAKIMO FMC, in a format provided by the FMC. The report will include any changes in BMU registration; summary fisheries information on catch, effort, marketing etc; results of fisheries patrols; fisheries licensing information; district plans; new by-laws and ordinances;

4. Advocate for the integration of district fisheries plans into District Development Plans and the Lake Kyoga Fisheries Management Strategy;

5. Participate in the development of a district fisheries ordinance;

6. Provide representation at district level in the selection process of boat owners for licensing, in collaboration with the local district authorities;

7. Reduce illegal fishing by conducting fisheries monitoring patrols within the district, in collaboration with LAKIMO structures, fisheries staff and other government agencies; reduce illegal fish marketing by working closely with local and national government agencies;

8. Lobby for increased safety of fishermen on water, and for improved access to affordable life jackets to be worn by fishermen; lobby for increased sanitary and hygienic conditions at all fish landing sites in the district;

9. Link with National Agricultural Advisory Services (NAADS) at district level and other service providers to lobby for capacity building and fisheries advisory services to BMU members.

4.4 Sustainable Funding of Management Organisations

4.4.1 Beach Management Units

Sources of funding:
The BMU legislation has three provisions for financial reform (i) allocation of 25% of the money generated from issuing fish movement permits at the fish landing site; (ii) profit generated from tender holding for those BMUs who may win district fish landing site tenders; and, (iii) collection of a number of fish or a set value per boat landing as established through bye-laws vetted by local councils.

None of these methods is entirely satisfactory. The first is an added tax introduced to track the origin of fish and its movement after landing. This relates to a traceability requirement of the export fishery to the EU in relation mainly to Nile perch, but applies in law to all species of fish throughout Uganda. The second accepts the tendering system and makes no attempt at reform of this exploitative and unfair system. The third involves another addition to the tax burden of producers only, and will not be popular whilst the tender holder remains alongside collecting the same type of tax.

Fisheries Tendering:
There is clear and widespread evidence that fisheries tendering is a highly profitable business and consequently, there is much competition to acquire tenders. A recent study showed that of the total amount of money collected by tenderers at 91 fish landings on Lake Kyoga, 20% of it went to local government, 25% was used in collecting fisheries taxes and the remaining 55% went as profit to the tender holder. It has been estimated that the annual profit from tendering is over Ush 700 million on Lake Kyoga, and it may be up to ten times this amount on Lake Victoria. These profits are not re-invested in fisheries management and development. They go into the pockets of the tenderer.

Fisheries tendering over-charges resources users, especially the poorest users, underpays local governments and undermines efforts to promote sustainable resource management. Fisheries tendering is one of the key areas of fisheries management in need of immediate major reform.

BMU Fisheries User Fee:
An alternative approach to fisheries tendering, currently under discussion, is the replacement of fisheries tendering by a BMU Fisheries User Fee (FUF) paid directly to district government by BMUs. Financial analyses reveal that this system, if employed, will increase the funds to local government, decrease the charges to resource users and leave a substantial amount for fisheries management and development. This system also offers the opportunity to simplify a complex local fisheries taxation system and takes into account its differential impacts on different stakeholder groups with regard to poverty reduction. Based on substantial evidence from several lakes, including George, Kyoga, Victoria and Wamala, it is clear that there are immense economic, social and environmental gains to be obtained by replacing tendering with a BMU Fisheries User Fee.

An example is given in the box below to demonstrate the considerable economic gains to be obtained by replacing tendering with a BMU Fisheries User Fee.

Costs & profit	Fisheries Tender (Ush)	Fisheries User Fee (Ush)
Local Government charge	200,000	250,000
Fee/tax collection costs	250,000	250,000
Charge to BMU members	1,000,000	900,000
Profit	550,000	400,000

From the table, the Trainer should make the following key points:

1. Local Government receives more cash through the Fisheries User Fee than tendering;

2. BMU members pay less to the Fisheries User Fee than to the tenderer;

3. The profit made by BMU Fisheries User Fee is deposited in the BMU bank account and used for fisheries management and development.

4. When paid every three months and all BMU members contribute to the Fisheries User Fee, it is affordable even at initial start-up of the system.

5. Once the Fisheries User Fee is in regular operation, the collection of daily payments (e.g. boat landing charge, marketing charges) from members will pay for both the next installment of the FUF to local government and investment into the BMU bank account.

6. The Fisheries User Fee is more transparent, accountable and fairer than fisheries tendering.

7. The Fisheries User Fee provides a sustainable source of income for fisheries planning and management by BMUs, avoiding their dependency on government grants to hold meetings etc.

<u>Fish Movement Permit Fee:</u>
Recent laws governing the issue of a fish movement permit administered through BMUs set charges to be paid by fishmongers operating from landing sites. The charges duplicate the pre-existing taxes levied by the fisheries tender holder. Under a Fisheries User Fee, a Fish Movement Permit would remain as a legal requirement to be administered by BMUs but charges should not be made directly for the movement permit but incorporated into the BMU Fisheries User Fee.

4.4.2 Lake wide management organisations

Funds to run lake wide management organisations such as LAKIMO and LAGBIMO will come from a variety of sources, including contributions from local government and contributions from BMU members, who themselves will raise funds for BMU activities from the fishery. In addition, it is possible that funds may be obtained from central government grants and from development partners, who may be keen to assist these new types of institutions once the financial commitment from members is in place.

Self-financing by membership contributions from local government and community members will take time to fully achieve. Time is needed for the organisations to prove themselves capable of service delivery. To achieve all the expected livelihood benefits from very young organisations like LAGBIMO and LAKIMO, that are spearheading a new national co-management approach, initial supplementary central support will be needed during the early, formative years. A specific central grant is needed, especially under the emerging Fiscal Decentralisation Programme, to support operations and capacity building activities in LAGBIMO's and LAKIMO's first three years. This will allow time for member stakeholders to evaluate the performance of the organisation and to incrementally revise stakeholder financial contributions.

4.4.3 National management organisation

The national Fisheries Policy was approved by Cabinet on 23 March 2004. The policy contains the establishment of the Uganda Fisheries Authority (UFA), a body with considerable autonomy in decision-making and one, which should be self-financing in the medium term. The UFA is designed to provide more effective and timely service delivery to all levels of stakeholders in the fisheries sector. This service delivery will be financed by resource users at all levels, from private industry and local governments to grassroots BMUs. Through the introduction of a BMU Fisheries User Fee, a contribution can be made to UFA without an increase in costs to local governments and BMUs. This can be done by a using fairer and more rational distribution of revenue already generated through taxes and tenders.

5. MAKING MANAGEMENT PLANS

5.1 Recap of Training Module 1

Training Module 1 – "Orientation of BMUs", completed in December 2003, included a session that introduced and explained the purpose and process of developing planning. That session focussed on the purpose and principles of community based planning, including BMU planning, and the local government development planning process. It also covered the purpose and importance of plans, how to develop local BMU plans, how to implement plans and how to monitor the progress of implementing plans.

The training course emphasised that effective planning is one of the most important functions of a BMU. It stressed that it is essential that the BMU Committee members are absolutely clear about what the BMU should be doing in planning and how they must link with and influence local government development plans to attract assistance and funds to implement plans.

In this chapter, we focus on making a lake management plan and linking it to lower level plans of BMUs or BMU associations (e.g. District BMUs) and to the development plans of local governments.

5.2 Planning process

Ownership of plan and planning process

Within any management institution, whether it's a BMU or a lake wide organisation, the process for making a plan must be very clear. This involves who does what, when and how. Within the lake management organisations, LAGBIMO and LAKIMO, their Assemblies are responsible for calling for a plan to be made and agreeing who leads the planning process. The standing committees for Planning and Finance are responsible for making a draft Lake Management Plan (LMP) for approval by the Assemblies of both organisations. Their Fisheries Management Committees are responsible for making Fisheries Management Strategies (FMS) that are incorporated into the broader Lake Management Plans.

For any plan to be effective, it must be well known and accepted by the stakeholders for whom it is designed. This means that a wide range of stakeholder interests needs to be addressed in the plan. This, in turn, requires a process of consultation and feedback at all levels, from grassroots BMUs to national institutions. The planning process itself needs to be well-planned. It requires time and effort on the part of the selected planning group and resources to enable them to complete their tasks. In LAGBIMO and LAKIMO, sub-groups of standing committees lead the lake wide planning process.

Use of local knowledge

A deliberate effort has been made in designing the structure and functions of LAGBIMO and LAKIMO to ensure that best use is made of local knowledge and experience of fisheries resource users in planning and management. Fisheries Management Committees of both organisations have majority membership from BMUs. Particular care is required to ensure that the views

of the traditionally marginalised stakeholder groups e.g. fishing crew and women, are heard by giving them a chance for free and open expression in planning meetings, and that their views are taken into account when making management plans. It is important that government staff on these committees help develop the planning skills of their BMU partners.

The need for reliable planning information

The collection, use and transfer of planning information are essential components of making a plan. They should also form a crucially important part of the plan itself. The Fisheries Management Committees have a responsibility to ensure that reliable, good quality fisheries planning information is provided by BMUs. The mechanisms and activities needed to achieve this should therefore be included in the plan. The information collected by BMUs must be analysed and used during regular meetings of BMUs, BMU associations and the FMCs.

The Planning and Finance Committees deal with wider ranging social, economic and environmental information, much of which is related to catchment issues on land rather than on water, and therefore beyond the reach of individual BMUs. Membership of these committees is dominated by various technical government staff who are best placed to access catchment information and address broad environmental issues by developing appropriate mitigation measures.

5.3 Scope of a plan

Physical boundaries

The geographical scope of a plan will be determined largely by the mandate of the organisation making it. For example, a BMU can make its own local plan, a district BMU committee can develop a plan within the administrative boundary of the district, whilst a lake wide organisation can make a plan that covers the whole lake and its catchment, possibly crossing district or international boundaries.

In developing a Fisheries Management Strategy, there is a need to specify geographical management boundaries. These must take into account the distribution and mobility of unit fish stocks and the fishing communities who exploit these stocks. If the FMS covers more than one water body, as it does within LAKIMO, then the differences between water bodies must be taken into account when designing specific management measures.

Wetlands immediately adjoining lakes provide important fish breeding and nursery areas for the fish stocks of lakes and must therefore also be included within the boundaries of a management plan. There is often little information on the relationship between fish populations in lakes and those in the inflowing and out flowing rivers. However, these rivers are an important integral part of lake fisheries and should be taken into account when determining management boundaries.

Sectoral scope

A Lake Management Plan takes a wider, more holistic view than the Fisheries Management Strategy, and incorporates the interests of a wider range of stakeholders, a wider geographical focus and a broader multi-sectoral planning approach. A LMP includes a variety of catchment influences relating to agriculture, forestry, wildlife management, wetland management, water resources development, industrial activities and urban growth. A LMP also addresses wider development aims within lake dependent communities, including health, education, infrastructural development and the development, where necessary, of alternative livelihood strategies.

Sub-sectoral content

A Fisheries Management Strategy should cover all fisheries-related activities, including not only capture, but also the post-harvest sub-sectors of processing and marketing. It should also cover social and economic aspects relating to control of access to, and benefits from fisheries. A FMS does not include aquaculture. It may, however, link to aquaculture in relation to consideration of fisheries enhancement strategies such as cage and pen culture, or culture based fisheries developed through stocking water bodies with cultured fish.

Timing and duration of a plan

A Lake Management Plan and its Fisheries Management Strategy should be designed, as a dynamic, continuous process of local planning that is responsive to changes in circumstances, some of which may occur very quickly and demand rapid, agreed responses. A plan should also be designed to integrate into local government planning structures and processes. It should therefore be based on the three-year rolling plan system that is subject to annual review. When there is need for a management response not already included in the annually agreed plan, then the FMCs, PFCs and Executive Committees have delegated planning and management responsibilities to ensure that appropriate day-to-day actions are taken.

Integrating plans into Local Government development plans

LAGBIMO, LAKIMO and BMUs are NOT PROJECTS, but are part of a new approach adopted by government to help reduce poverty and increase economic growth. The success of these organisations is totally dependent on its members. They can only work as well as their members make them work.

The best way to make sure that management plans are sustainably funded and implemented, is for members of the management organisations to make deliberate, targeted effort to engage in local government planning processes and to lobby strongly for their plans (BMU plans, District BMU plans, lake wide plans) to be inserted within sub-county and district development plans. Once they have succeeded in doing this, then they must again lobby hard to ensure their plans are allocated the agreed funding through local governments.

It is essential, therefore, that the development and submission of BMU plans and lake management plans are timed to coincide with the sequence of events in the local government planning cycle.

5.4 Structure of a plan

Before making a plan, the planning framework must first be agreed. Most plans share common components. For instance, they often work towards an agreed vision e.g. LAGBIMO, LAKIMO and the international Lake Victoria Fisheries Organisation (LVFO) have all developed vision statements for their respective lakes. Secondly, all plans must have clearly defined aims, objectives or purpose. These terms are often used interchangeably but all are used to answer the basic question - what's the plan for? In this manual, the term "purpose" of a plan is adopted. In order to successfully achieve the purpose of a plan, a number of intermediate objectives or outputs are required. The delivery of each output then depends upon the successful implementation of a set of actions or activities.

The purpose, outputs and activities make up what is known as a Logical Framework of a plan, known in short as a logframe. The vision often becomes the longer-term goal of the plan in a logframe. In order to monitor and evaluate how well a plan is being implemented, a series of indicators need to be developed and used at purpose and output levels.

An example of a logframe of a management plan currently under development by LAKIMO is presented below.

> **Goal:** *Good living standard, free from poverty, within lake dependent communities using and sustainably managing productive natural resources in a clean and healthy environment*

A management plan should contribute to achieving the goal or vision but other factors beyond the control of those implementing the plan may influence achievement e.g. war, large scale climatic factors etc. Therefore, the success of a plan is not measured by delivery of a goal or vision.

> **Purpose:** *To improve livelihoods and reduce poverty within lake dependent communities through sustainable management of natural resources*

Clearly, the focus of the Kyoga Management Plan is on people not fish. The intention is to reduce poverty, improve local peoples' livelihoods. The way this is done is through improved management of lake resources, particularly fisheries resources. The success of a plan is measured by delivery of its purpose. Factors that may influence delivery of the purpose are evaluated as risks and assumptions in a logframe.

> **Output 1:** *Management institutions with improved capacities and effectively operating*

This output involves creating management institutions (e.g. BMUs and LAKIMO), training people within these institutions and obtaining sustainable funding to run the institutions.

Output 2: *Information for planning, management and development available and used*

This involves the collection, use and transfer of information needed for regular planning meetings. It also includes research information. Information is for creating local bye-laws and for monitoring and evaluating the performance in implementing the plan and the various impacts of the plan.

Output 3: *Delivery of and access to services improved*

This involves a wide range of services, including, but not limited to the following: fish processing and marketing facilities at landing sites, improved water supply and sanitation, clinics, schools, feeder roads, linkage to other development programmes and attraction of new ones; technical service delivery by local government, NAADS and national institutions.

Output 4: *Fisheries production sustainably increased and equitably accessed*

This involves the development and implementation of a Fisheries Management Strategy including enforcement of national laws and local by-laws. There is an explicit focus on fair access to fisheries resources and therefore involves participatory fisheries licensing procedures. There is an intention to increase fish catches, therefore any fisheries practices on water or land that damage fish stocks will be addressed.

Output 5: *ENR sustainably managed*

This output takes a broad view and covers catchment issues such as agriculture, forestry, urbanisation, industrial pollution, water resources management and wetlands management.

All outputs must be essential to the successful delivery of the purpose. If any one output is removed from the design of the plan, it should mean that the purpose cannot be delivered. The package of individual activity areas for each output is not shown in the above example.

Several factors need to be taken into account when developing the purpose of a lake management plan. These can include the following:

(i) Use of water body – whether the water body should be reserved for subsistence, commercial or recreational fisheries;
(ii) Social and economic factors – whether the water body should be managed for maximum employment, food production or profit;
(iii) Environmental factors – whether the water body should be managed for non-fishery goals e.g. tourism, recreation

Certain sub-components of the management purpose can be conflicting. For example, maximising access or employment under sustainable exploitation of fisheries can reduce individual income of fishermen, which, in turn, can lower

their living standards. The balance or prioritisation of each sub-objective will need to be discussed and agreed by stakeholders during routine planning and management meetings to review management rules and direction.

5.5 Monitoring and Evaluation of a Plan

All management plans must have framework that clearly outlines who, how, and when the performance in implementing the plan and its impacts will be monitored, measured and reported. This makes up the Monitoring and Evaluation (M&E) system. BMUs already have a framework for monitoring and evaluating their performance shown in Annex 4 of the national BMU Guidelines. BMU Training Module 1 explained how to use the BMU monitoring form in Annex 4 of the Guidelines, but given the importance of monitoring, chapter 10 of this training course goes over this once again.

Similar monitoring frameworks have been, or are being, developed to monitor and evaluate the performance of lake wide management institutions on lakes George and Kyoga. The monitoring frameworks of management plans are contained within logframes by adding columns for "Objective Verifiable Indicators" (OVIs) and the "Means of Verification" (MoVs).

OVIs are types of information that indicate meaningful change or progress in implementation of a plan. Indicators should be quantifiable and collectable within reasonable cost and effort. Examples of key fisheries indicators are provided in chapter 6. MoVs are the sources of information upon which indicators are based. These are often minutes of meetings, technical reports and published statistics. The sources of information should be easily available to those people tasked to undertake monitoring.

5.6 Guiding Principles of a Plan

In order to help maintain a particular focus during development of a management plan and its implementation, it is useful to establish a set of general principles to serve as a guide. These are often used to steer implementation and make sure that it is still on course as planned during design.

As an example, in 2003 the FMC of LAGBIMO developed the following Guiding Principles for its own Fisheries Management Strategy on lake George.

1. A participatory, demand-driven co-management approach will be adopted through a partnership of civil society BMUs and local governments;

2. Management to be guided by policy and law and operate within the law;

3. The plan must take into account the diverse interests of many different stakeholders;

4. A poverty focus and gender sensitivity will be maintained at all levels of the plan;

5. The management approach must be honest, transparent and accountable;

6. The Precautionary Principle of the international Code of Conduct for Responsible Fisheries will be applied in the plan. This principle states that *"the absence of adequate scientific information should not be used as a reason for postponing or failing to take conservation and management measures".* This means that agreed protective actions should be applied even in the absence of adequate scientific information.

The above set of principles was considered to be the most relevant to stakeholders on Lake George. Stakeholders on other lakes should establish their own set according to local needs and aspirations.

5.7 Making Bye-laws to Support a Plan

An essential part of making a management plan is the development of local rules to guide implementation. These rules become more effective when recognised by law. It is important, therefore, for a management institution to develop local bye-laws and ordinances in consonance with the over-arching national legislation.

A step-by-step guide to developing bye-laws has been developed by the Fisheries Management Committee of LAGBIMO. This guide is based on the Local Government Act 1997, The Fish Act 1964 as amended by Act No. 3 of 1967 and the Fish (Beach Management) Rules 2003.

Step 1. Any BMU member wishing to introduce a motion for a bye-law, writes and sends the proposed bye-law to the BMU Chairperson. The BMU Chairperson will call a meeting of the BMU Assembly at which the motion is read aloud. The BMU Assembly will discuss it and reach agreement on it by consensus. It should be noted that at village level, every member in the BMU who is 18 years or above and residing in the village, is equivalent to a councillor in the village and can propose a motion for a bye-law in accordance with the Local Government Act 1997 as amended.

Step 2. The BMU Chairperson forwards the proposed motion through the LC1, LC2 or LC3, as appropriate, to the Sub-county Speaker and sends sufficient copies of the proposed bye-law for each council member.

Step 3. A motion is written on the proposed bye-law and sent to the Sub-county Speaker 14 days before the council sits for inclusion on the order paper. The Sub-county Chairperson or Sub-county Chief must ensure the following:

- Copies of the proposed bye-law must be distributed to all members before council debates it;

- Publish a notice of intent to make a bye-law;
- Invite presentations in writing by any person who objects to the making of the bye-law within three weeks from the date of notice.

Step 4. The mover reads the motion for adoption and subsequent discussion. Note that the speaker shall ask a parish councillor to move the motion.

Step 5. Council members are given time to study the proposed bye-law to ensure conformity with other laws and, if necessary, to make consultations. A District Fisheries Officer should serve as a resource person for this.

Step 6. The motion is read in the subsequent (second) sitting of Sub-county Council for ratification.

Step 7. If approved, then the Sub-county Council shall notify the District Council of the bye-law before implementing the law;

Step 8. If approved, then the Sub-county Council also returns the bye-law with acceptance note to the responsible BMU Chairperson and the Chairpersons of LC 1 and 2. If the motion has been rejected, the proposed bye-law is sent back with guiding notes.

Step 9. The BMU Chairperson convenes a meeting of the BMU Assembly to give feedback to the BMU members and signs the bye-law upon resolution of the meeting.

Step 10. Copies of the ratified bye-law are lodged by the BMU Chairperson with the Chairpersons of LC1 and LC2.

Step 11. The BMU Chairperson shall notify the LC1, LC2 and LC3 before implementing the bye-law.

For district ordinances, the draft is sent the District Council for ratification and to the Attorney General for certification of conformity with district or other laws and policies.

In chapter 8, an example of proposed bye-laws for ratification by all sub-county councils around Lake George are presented.

6. INFORMATION NEEDED FOR MANAGEMENT

6.1 Introduction

This chapter deals with the main types of information needed for fisheries resource management.

BMUs have legal powers and responsibility for fisheries planning and management. To do this requires reliable and accurate information on fish stocks and fisheries. BMUs therefore need to take seriously their responsibility for fisheries information collection, and to use this information in making good fisheries management decisions. Without fisheries information it is not possible to manage fisheries. This chapter deals with the types of information needed for fisheries management.

6.2 Total Fish Catch

The total catch of fish can be measured in terms of numbers of fish caught or by their total weight. Catches are not weighed in many places in Uganda because of the lack of weighing scales. An exception is Lake George and some landing sites on Lake Victoria. Catch weight is, however, the form most often used in monitoring and managing fisheries and therefore BMUs need to acquire weighing scales to monitor their own fish catches. Knowledge of catch by fish number and weight gives an idea of the average size of fish caught. This is important in avoiding the capture of immature fish and can be used to cross check information size of fishing gears e.g. gill net mesh size or hook size.

Total fish catch can be measured or estimated and expressed in different ways for different purposes. For example, it can be the catch of:

- All gears and all species combined.
- Individual gear types or fishing methods;
- Individual fish species;

The above forms of catch estimates can be applied to:

- different time periods e.g. per day, month and year, or
- different geographical areas e.g. per landing site, parish, sub-county, district, unit area of water, per lake and nationally.

<u>Total catch of all gears and all species combined by area</u>
Estimates of catch for different geographical areas are useful in many different ways. Knowledge of the total catch from an individual landing site provides local users with an approximate indication of the current state of the fishery as a whole in the local area. The information also gives local planners and administrators an idea of the relative importance of the site, the amount of business carried out there and, when linked to fish price data, the economic value of fisheries at that site.

At the levels of parish, sub-county and district, catch information should be used in making local government development plans. In doing so, it must be

linked to other types of social, economic and environmental planning information. It should not be surprising when, without this information, it is usual for local fisheries to be taken for granted, under-valued and unable to attract development investment from local governments.

At a lake wide level, catch estimates are one of the key indicators on the state of shared fish resources and it is at this level that rational resource management decisions must be taken. This is because fish are mobile and move across artificial administrative boundaries on water between different districts. Catch per unit area of water body e.g. kg/hectare or tonnes/km^2 of a lake provide the manager with a useful indicator to compare with other similar water bodies or that can be used to examine changes in the overall fishery through time.

Nationally, catch data are compiled to provide an overall indication of the scale and significance of fisheries to the country. This information, when combined with others, is used to guide broad national planning and policy decisions. National catch data are transferred internationally to FAO where global catch data compilation is undertaken.

Total catch through time:
Daily catches are normally used as a basis from which to estimate catches for longer time periods e.g. monthly, quarterly or annually. The daily catch usually has a reasonably high degree of variability making it necessary to sample several days to obtain a reliable estimate for the longer-term e.g. month.

Monthly catch estimates are useful for identifying broad seasonal trends in fish availability and for quickly spotting any problems that affect fish abundance.

Annual catch data are useful in identifying long-term changes in fisheries, giving a rough indicator of stock status which can be used to further identify and investigate a particular management issue.

The disadvantage of information on total catch of all gears and all species is that it gives no indication of changes within individual fishing gears/methods or between different fish species. It is precisely these types of information that are needed for resource management.

Total catch by gear/fishing method (all species combined)
This information is needed because each major gear type or fishing method should be regarded as an individual fishery for resource management purposes. Since different gears represent different fisheries, they therefore need their own rules and regulations.

Total catch by fish species
Catch of individual fish species provides the manager with a more accurate picture of changes taking place in tropical multi-species fisheries. Typically, as a fishery develops and fishing effort increases, the catch of first target species declines. In these multi-species fisheries, overall catch may remain stable for quite a long period, masking the progressive decline of individual species as

the fishers move from one target species to another (see section 6.5 for additional information).

Total catch by gear/fishing method per fish species

Catch of individual fish species by individual gears or fishing methods provides the most detailed and useful form of information for resource management purposes. Obviously, individual gear types and methods do not operate in isolation since they have a combined impact on multi-species fish stocks, but it is necessary to obtain information on each type separately to assess trends and make management decisions on individual fish stocks.

6.3 Fishing Effort

The term "fishing effort" is used to describe the total amount of fishing applied to a fish stock(s). It is rarely estimated in Ugandan fisheries but is absolutely essential for the sound management of these fisheries. Just as there are many ways to describe fish catch, there are also many different ways to measure, estimate and express the amount of fishing taking place. Common measures of fishing effort used in artisanal fisheries often include some elements of the following:

- Number of fishers
- Number of fishing boats
- Number of each fishing gear
- Gear selectivity (e.g. net mesh size, hook/bait size)
- Gear size (e.g. length or depth of nets)
- Boat size (e.g. capacity to carry more gears)
- Fishing duration (e.g. number of hours a gear is set/used per day)

The above estimates of fishing effort can be applied to:

- different time periods e.g. per day, month;
- different geographical areas e.g. per landing site, parish, sub-county, district, unit area of water, lake and nationally;

The amount of fishing effort is also affected by factors relating to changes in catching power, for example:

- different ways a particular gear is used e.g. active or passive fishing with gill nets;
- different materials from which a gear is constructed e.g. monofilament or multifilament gill net
- different forms of propulsion of a fishing boat e.g. paddle, sail or engine

Number of fishers

Knowledge of the total number of fishers exploiting a resource gives a rough indicator of fishing pressure. More importantly, it provides an indicator of the significance of the fishery in providing employment. This information is particularly important when linked to other information on the numbers of other fisheries stakeholders e.g. processors, fishmongers, the number of dependent households, number of women in fisheries, and poverty appraisals of fisheries stakeholders.

Taken together, these types of information provide the manager with information on the contribution that the fishery makes to local poverty reduction. It is precisely this information that is increasingly important to collect and use when planning interventions to be funded by local governments or other sources. There is strong competition for the scarce development funding available. Therefore to stand any chance of funding, an intervention must clearly show relevance to poverty reduction and gender sensitivity.

Fortunately, the BMU network and its system of member registration, now provides an easily accessible source of information of fisheries users.

Number of fishing boats

Knowledge of the total number of fishing boats provides a more accurate indicator of the total amount of fishing exerted on a fishery. However, this indicator does not provide the manager with information on the different fishing gears used by the fishing fleet.

Number of fishing gears

The total number of each type of fishing gear used on a water body provides the manager with the most accurate and useful information on the actual amount of fishing exerted on each fishery.

Fishing boat type, size and propulsion

The catching power of a fishing unit varies with boat type, size and method of propulsion which are often linked to how many fishing gears the boat can carry and the maximum catch in volume and tonnage. It is therefore important to record characteristics of the fishing boat that can influence its fishing effort.

Fishing gear type and size

The size of a fishing gear e.g. the mesh size of a gill net or the size of a hook has a major influence in determining the size of fish captured. It is therefore absolutely essential to obtain this information for each fishing unit.

It is also important, especially for gill nets, to record the overall size of the net. A factory made net is 90 m stretched mesh and 45 m when set in the water at the typical hanging ratio of 0.5. There are, however, many times when fishermen join two nets together to double the net depth. This net is usually known by a different local name that should be used to record it and distinguish from the standard gill net since its fishing power has increased.

6.4 Catch Per Unit Effort

Catch per unit effort (CPUE) is a measure of catch rate that can be expressed using different amounts and forms of effort. For example, it can be:

- Daily catch per boat (all species combined)
- Daily catch per fisherman (all species combined)
- Daily or catch per unit of a single gear type or fishing method (all species combined)
- All three above by individual species

Some examples of catch rates (CPUEs) of individual gears include:

- Daily catch per “mukene” net
- Daily catch per “mukene” net per light
- Daily catch per 100 hooks
- Daily catch per net per night of a 4.5 inch stationary set gill net

Of all CPUEs, the average daily catch per boat is probably the most commonly used form in Uganda. The measure, although useful to the fishery manager, does not provide information on individual gears or species.

With some analytical effort, the average daily catch per boat can be disaggregated into daily catch for each gear type or method and species e.g. the catch per night of a particular species from a single, standard stationary gill net of a single, specified mesh size is a particularly useful indicator for fisheries management since it provides a measure of the relative abundance of the fish species. This can be used to detect important changes in relative fish abundance over time or between different locations within a lake. A very good example used on Lake George is the catch per gill net (4.5 inches mesh) per night of ngege (*O.niloticus*). This is one of the key resource management indicators for the Lake George fishery.

Catch rates have another extremely important use. When multiplied by the appropriate estimate of fishing effort, they are used to estimate total fish catches. This is discussed in more detail in chapter 8.

6.5 Catch Composition

Information on catch of individual fish species can be used to examine various trends in changes in species composition at different levels e.g. at a lake wide level across all gears, for individual gear types or fishing methods, within particular locations compared to others, and through time, between different seasons or years. Changes in catch composition, expressed as percentages of total weight, or less commonly, total number of fish, reflect changes in relative abundance within fisheries of different fish species. This is important as an indicator of emerging problems or opportunities relating to individual species or species groups for which management decisions may need to be taken.

6.6 Fish Size at Capture and Maturity

As natural renewable resources, fish must be given a chance to grow and renew themselves before being caught by fishermen. The size at which fish are caught is a reflection of age. Knowledge of this is extremely important for resource management when linked to knowledge of the size at sexual maturity, a time when a fish species is able to first breed and reproduce. Limiting the size at capture is one of the key ways in which a manager can regulate exploitation of a fishery. It is therefore crucially important that such information is available for fisheries management.

6.7 Incidence of Illegal Fisheries Activities

One of the main aims of a co-management approach is to increase the involvement of local fisheries users in understanding and setting rules and regulations. In this way, it is intended to increase compliance with these regulations. In order to monitor and assess the impacts of a co-management approach, it is necessary to estimate the incidence of illegal fisheries activities on water and land.

A fisheries manager therefore needs information on the number of unlicensed fishing boats operating without permission. This relates to potential problems of overfishing and to the use of illegal gears or fishing methods. The manager also needs to be aware of the activities of the licensed fishing fleet and the incidence of illegal fish marketing.

6.8 Access to Fisheries

Fisheries are based on finite, shared resources. Access to these resources must be controlled in some way to achieve sustainable and wise use. This is best done in a participatory way at local level. In 2002, DFR delegated control of fisheries licensing to districts to facilitate this participatory process of controlling access to fisheries.

It is important that not only the licensing process but also the results of local fisheries licensing are monitored and recorded to provide social and economic information to the manager as a vital part of a lake management plan. Particular attention is needed to monitor poverty and gender targets of a licensing system.

6.9 Revenue from Fisheries

Various types of economic information are needed for sound fisheries management. For example, it is important to know the economic values of fish catches, how they vary through time and place, and how they respond to different management measures. In order to estimate the value of catches, average daily fish prices must be monitored for the commercially important species.

Once fish are landed, it is necessary to know about processing and marketing activities that add value to the landed catch. BMUs have a statutory responsibility to provide marketing information compiled from fish movement permits. This includes information on the amount of each fish species marketed through the landing site, whether fresh, smoked, salted or sun-dried, its destination and total fee paid for the permit.

It is necessary to keep good records of all other revenue generated by fisheries taxation (e.g. tender values, boat licences, fishing permits, processor fees etc). This is particularly important in order to demonstrate to local governments the significant economic contribution made by the sector. This can then be used to make a case for increased investment by local governments in fisheries management.

6.10 Summary: Key Fisheries Resource Management Indicators

The following key fisheries indicators should be estimated at the levels of BMU, parish, sub-county, district and lake each month, quarter and year, unless specified differently.

The sources of information upon which the indicators are based are given in brackets (discussed in more detail in chapter 8).

Note: CAS = directly Catch Assessment Survey
CAS* = indirectly with additional analysis of CAS outputs
MCS = Monitoring, Control and Surveillance reports

Catch:

1. Total catch of all species and all gears combined (CAS)
2. Total catch by gear type of all species combined (CAS)
3. Total catch by species of all gears combined (CAS)
4. Total catch of dominant species for each main gear type (CAS*)

Effort:

5. Average number of boats fishing per day (all gears combined) (CAS)
6. Total number of boats fishing per month (all gears combined) (CAS)
7. Average number of boats fishing per day (by gear type/method) (CAS)
8. Total number of boats fishing per month (by gear type/method) (CAS)
9. Average number of gears fishing per day (by gear type/method) (CAS*)
10. Total number of gears fishing month (by gear type/method) (CAS*)

Catch rate (CPUE in kg):

11. Average catch per boat per day (all gears & all species) (CAS)
12. Average catch per boat per day (by gear type & all species) (CAS)
13. Average catch per boat per day (by gears type & species) (CAS*)
14. Average catch per standard gear by species (indicator of species relative abundance) (Research and CAS*)

Fish size/age:

15. Total number of boats using recommended gear size (mesh or hook size) (CAS*)
16. Total number of gears by gear type of recommended size (mesh or hook size) (CAS*)

Fish length at first maturity:

17. Length at first maturity determined annually for dominant species (Research)

Illegal fisheries activities

18. Total number of unlicensed fishing boats (CAS*)
19. Total number of arrests per month by MCS patrols on water (MCS)
20. Total number of arrests of fishmongers by MCS patrols on land (DFO reports, BMU minutes of meetings)

Access to fisheries:

21. Annual total number of fishing boat licences issued to fishing crew (DFO reports; BMU minutes of meetings)
22. Annual total number of fishing boat licences issued to women (DFO reports; BMU minutes of meetings)

Fisheries Revenue:

23. Average value of catch per boat (all species) (CAS)
24. Value of total catch per location (BMUs, local governments) (CAS)
25. Annual total income to districts and sub-counties from fisheries taxes (DFO reports; BMU minutes meetings)
26. Annual total investment from districts and sub-counties for fisheries management (DFO reports and lake management organisation reports)

Fisheries stakeholders and dependency

27. Annual total numbers of BMU members by stakeholder group and sex (BMU registers)

7. COLLECTING AND USING FISHERIES INFORMATION

7.1 Past Fisheries Information Collection Systems

It is recognised by government that the system of collection, use and transfer of fisheries information needed for planning and management require urgent improvement as a matter of high priority in sector planning. The problem is not unique to Uganda, but common in very many countries in Africa and beyond.

Typical problems that constrain regular collection of fisheries data include:

- Little or no incentive to collect information because it is not used locally for fisheries management by communities or government, and therefore almost irrelevant;
- Low motivation of collectors because its quite hard work, therefore fisheries officers are reluctant to do the work for no additional reward;
- Low importance to local governments, therefore low or no funding by them and no encouragement or pressure on fisheries officers to deliver;
- Low understanding of local governments on how to use fisheries information to manage fisheries.

7.2 BMUs and Fisheries Catch Assessment Surveys

Since January 2002, fisheries communities on Lake George have been collecting fisheries information for management purposes. ILM has facilitated this process by providing standard data collection forms, regular training and equipment such as weighing scales and calculators to collect and analyse the information. Communities agreed to support a community information collector to collect and compile information on fish catch, value and fishing effort. The communities remunerate the data collectors by offering fish from the landed catch on the data recording days.

This represents a major breakthrough in fisheries information collection. Communities recognise the importance to themselves in collecting information and using it in fisheries management planning. Within LAGBIMO, BMUs are compiling this information for use by the Fisheries Management Committee and supported by the LAGBIMO Secretariat.

In this chapter, the system used on Lake George has been amended and improved in response to lessons learned during the past two years. The system is based on the Catch Assessment Survey (CAS) system developed by FAO and initially introduced to Uganda in the late 1980s, and in very many other countries over the past three decades.

The CAS system on Lake George changed the former system of recording partial information on catch per boat every day of the year into a more complete survey using standardised forms and sampling on 4 to 8 days per month. Despite the reduced frequency of sampling, this number of days is an intensive survey effort and the workload on each sampling day is higher than before.

The two key features accounting for the sustained use of the system on Lake George in the absence of project allowances are:

- Communities remunerate community data collectors themselves
- Collected information is used locally for planning and management

The CAS system is designed to link directly into local government planning systems at parish, sub-county and district levels. There are efforts currently being made to link CAS to the "*Local Government Information Communication System"* (LOGICS). CAS also provides information on a lake wide basis for lake management organisations such as LAGBIMO and LAKIMO. Information from districts and lake management organisations is then transferred to DFR at national level.

The CAS system described here is based on BMUs providing information from all landing sites under their jurisdiction. This involves extrapolation to provide catch estimates for unsampled landings.

The CAS system is designed for use by hand held calculators at BMU level and computerisation at district level and above. The link to LOGICS encourages the use of Microsoft Access as the CAS database.

In the discussion that follows, each CAS form is presented and explained in turn. There are seven CAS forms. CAS 1-3 relate to information collected and analysed at the level of the BMU. The remaining CAS 4 to 7 forms are compilations and additions of information at parish, sub-county, district and lake wide levels respectively.

BMU CAS 1 - DAILY FISH LANDINGS

- This form is used for recording information from fishing boats as they land.
- The water body sampled must be specified and all landing sites under the BMU jurisdiction must be listed. Each water body is analysed separately in CAS.
- BMU data recorders should sample as many fishing boats as possible at a designated landing site on 4 to 8 sampling days per month.
- The form is divided into two sections: the fishing unit (boat and gear) and the catch by dominant species.
- For each fishing unit, there is a count of the number of boats sampled (column 1), a record of boat type, gear type, number of gears used and the mesh size (in inches) or hook size.
- The footnotes at the bottom of the table list agreed codes for boat and gear types for each water body.
- Sampled numbers and weights of each dominant fish species are then recorded. The weight of all species per boat is calculated and entered in the last column of the table. This is the first calculation made and care should be taken to ensure accuracy in using a calculator to do it.
- Sampled numbers and weights of each dominant fish species are totalled in the third last row of the table.

- The average price per kg of each species is obtained from traders at the landing site market. Use the weighing scale to determine the weight at price quoted. Enter average prices in second last row of table.
- For each gear type, on the last row of the form, enter the number of boats that were not sampled by data recorders but which fished that day. Details of those boats not sampled should be obtained from the BMU Committee.
- As a CROSS-CHECK ON ACCURACY OF CALCULATIONS, the total weight of all species calculated in the last column must equal (within 1kg) the calculated total weight in the third last row of table. If not, a mistake(s) has been made and must be found and corrected.

BMU CAS 2 – DAILY AND MONTHLY FISHING EFFORT AND CATCH BY GEAR

- The form is divided into two tables, one for recording fishing boats and the other for calculating average daily catches and monthly catches by gear type.
- In Table 1, each dominant gear type is listed in row 1. For each gear type, the total number of boats that fished using this gear type is recorded on each sampling day up to a maximum of 8 days per month (2 days per week). This total MUST include the number of boats sampled ADDED to the boats not sampled obtained from bottom row of CAS 1.
- The following calculations are made in the table for each gear type: the total number of boats using the gear type on all days sampled, the average number of boats per day and the total number of boats per month.
- The notes at the bottom of Table 1 explain how to do the calculations.
- In Table 2, each dominant gear type is listed in row 1. For each gear type, the average catch (in kg) per boat is calculated on each sampling day. Note 1 at the bottom of the table explains how to do the calculation.
- Other calculations made in the table for each gear type, include: the average daily catch per month and the total catch per month. Notes 2 & 3 at the bottom of the table explain how to do the calculations.
- ESTIMATING THE CATCH OF ILLEGAL BOATS/GEARS: it will not be easy to sample the boats using illegal gears and methods. However, since they are common and make up a large part of the total catch, every BMU must provide estimates each month of the number of boats operating with each type of illegal gear and enter them in Table 1, with an estimate of the average daily catch of each type illegal gear entered in Table 2. The catch rate estimate might be based on only very few samples, but a recorder should never leave gaps and have no catch rate for any gear type used in the fishery. In some circumstances, the catch rates of illegal gears may be obtained from the nearest MCS patrol.
- CROSS-CHECK ON ACCURACY OF CALCULATIONS: the total number of all boats given at the bottom of the last column of table 1 should be the same when calculated either by adding all numbers across the row or by multiplying the average number of all boats per

day (last column) by the number of days in the month. If not, a mistake(s) has been made and must be found and corrected.

BMU CAS 3 – DAILY AND MONTHLY CATCH AND VALUE BY SPECIES

- The form is divided into two tables, one for calculating average daily catches and monthly catches by species, and the other for recording average daily price and total monthly value of each species.
- Notes at the bottom of each table explain how to do the calculations.
- The calculation of daily catch by species needs to be done carefully because it involves using three numbers: the total number of boats fishing per day (given in the last column of Table 1, CAS 2) is divided by the number of boats sampled on that day (given at bottom of column 1 of CAS 1), the result of this division is then multiplied by the total sampled catch by species (given on third last row of CAS 1).
- ESTIMATING THE CATCH OF ILLEGAL BOATS/GEARS: following on from CAS 2, every BMU must provide estimates each month of the average daily catch by species of illegal gears.
- CROSS-CHECK ON ACCURACY OF CALCULATIONS: the total catch of all species given at the bottom of the last column of Table 1 should equal the total catch of all gears given at the bottom of the last column of Table 2 of CAS 2. If not, a mistake(s) has been made and must be found and corrected.

PARISH CAS 4 - MONTHLY FISH LANDINGS BY WATER BODY

- The form is divided into three tables. Table 1 is for compiling total monthly catches by species for all BMUs and then adding these to obtain the total monthly catch by species for a parish.
- Table 2 is for compiling total monthly catches by gear type for all BMUs and then adding these to obtain the total monthly catch by gear type for a parish.
- Table 3 is for compiling total monthly value of catch by species for all BMUs and then adding these to obtain the total monthly value of catch by species for a parish.

CAS 5, CAS 6 and CAS 7 - MONTHLY FISH LANDINGS

- These compile information in the same way as CAS 4 but for their respective levels – sub-county, district and lake wide.

CATCH ASSESSMENT SURVEY: BMU CAS 1 - DAILY FISH LANDINGS

NAME OF WATER BODY:……NAME OF BMU……
NAME OF LANDING SITES……

DISTRICT……..SUB-COUNTY…….. PARISH……

DAY…… MONTH……... YEAR…….…….. NAME OF RECORDER…….

FISHING UNIT					**NUMBERS & WEIGHT OF FISH LANDED** (in kg to nearest one decimal place)													
BOATS*		**GEARS/ METHODS****			**NGEGE**		**SEMUTUNDU**		**MALE**		**MAMBA**		**BAMBARA**		**NJUNGULI**		**OTHERS**		**TOTAL**
Ser No.	TYPE	TYPE	MESH HOOK SIZE	NO.***	NO.	WT.	NO.	WT.	NO.	WT.	NO.	WT.	NO.	WT.	NO.	WT.	NO.****	WT.	WEIGHT
Total Sampled Number & Weight																			
Average Price of Fish per kg (Ush)																			
Total No. boats by gear not sampled		Gear 1 = x boats, Gear 2 = x boats, Gear 3 = x boats, Gear 4 = x boats, Gear 5 = x boats, Gear 6 = x boats, Gear 7 = x boats, Gear 8 = x boats, Gear 9 = x boats																	

Notes: BOAT TYPES: NB = NTEGA BOAT D = DINGHY **GEARS G = Stationary GILLNET, MG = Muchira GILLNET, Ty= TYCOON, LL= LONGLINE, FH= FLOATING HOOKS, R= ROD & LINE, T = TRAPS, O = OTHERS (examples from Lake George – need to adapt for other lakes). ***Record no. lights for mukene. ** No basins for mukene**

CATCH ASSESSMENT SURVEY: BMU CAS 2 – DAILY & MONTHLY FISHING EFFFORT AND CATCH BY GEAR

NAME OF WATER BODY:……..NAME OF BMU……..……
NAME OF LANDING SITES……..……

DISTRICT……..SUB-COUNTY…… PARISH……..……

DATE……..……NAME OF RECORDER……

TABLE 1 DAILY AND MONTHLY FISHING EFFORT BY GEAR OR FISHING METHOD

Name of gear or method used	Total number of boats Fishing per day (unsampled and sampled combined)*									Total boats, all gears
	Gear 1	Gear 2	Gear 3	Gear 4	Gear 5	Gear 6	Gear 7	Gear 8	Gear 9	
Day 1										
Day 2										
Day 3										
Day 4										
Day 5										
Day 6										
Day 7										
Day 8										
Total										
Average No. boats per day**										
Total No. boats per month***										

Note: *1. Total number of boats fishing per day = the number boats sampled (from column 1,CAS 1) added to those not sampled (CAS 1, bottom row)
**2. Average number of boats per day = total number of boats for days sampled divided by number of days sampled
***3. Total number of boats per month = average number of boats per day x number of days in month

TABLE 2 DAILY CATCH PER BOATAND TOTAL MONTHLY CATCH BY GEAR OR FISHING METHOD

Name of gear or method used	Average Daily Catches Per Boat									Total daily catch
	Gear 1	Gear 2	Gear 3	Gear 4	Gear 5	Gear 6	Gear 7	Gear 8	Gear 9	
Day 1										
Day 2										
Day 3										
Day 4										
Day 5										
Day 6										
Day 7										
Day 8										
Total										
Average daily catch/boat/month**										
Monthly catch by gear/method***										

Notes: *1. Average catch per day = total of all sampled catches of specified gear/method on a particular day / number of boats using specified gear/method
**2. Average daily catch/boat/month (kg to nearest single decimal place) = total of average catches for days sampled / number of days sampled
***3. Monthly catch by gear (to nearest kg) = average daily catch/boat/month x total monthly no. of boats using gear (from last row Table 1,CAS 2)

CATCH ASSESSMENT SURVEY: BMU CAS 3 – DAILY & MONTHLY CATCH & VALUE BY SPECIES

NAME OF WATER BODY:……..NAME OF BMU……..……..
NAME OF LANDING SITES……..
DISTRICT……..SUB-COUNTY…… PARISH……..……..

DATE……..……..NAME OF RECORDER……..……

TABLE 1 AVERAGE DAILY AND TOTAL MONTHLY CATCH BY FISH SPECIES

Name of fish	DAILY CATCH BY SPECIES (kg)*									Total catch all species
	Fish 1	Fish 2	Fish 3	Fish 4	Fish 5	Fish 6	Fish 7	Fish 8	Others	
Day 1										
Day 2										
Day 3										
Day 4										
Day 5										
Day 6										
Day 7										
Day 8										
Total										
Average daily catch**										
Monthly catch by fish species***										

Note: *1. Daily catch by species = total sampled catch of species (see totals in third last row of table, CAS 1) x (total number boats fished (see CAS 2 Table 1, last column) / number boats sampled given in CAS 1, column 1)
**2. Average daily catch by species (kg to nearest single decimal place) = total of daily catches for days sampled / number of days sampled
***3. Monthly catch by fish species (to nearest kg) = average daily catch x total number of days in the month

TABLE 2 AVERAGE DAILY PRICE AND TOTAL MONTHLY VALUE OF CATCH BY FISH SPECIES

Name of fish	Average Daily Price Per Kg of Fish (Ush – from last row of CAS 1)									Total catch all species
	Fish 1	Fish 2	Fish 3	Fish 4	Fish 5	Fish 6	Fish 7	Fish 8	Others	
Day 1										
Day 2										
Day 3										
Day 4										
Day 5										
Day 6										
Day 7										
Day 8										
Total										
Average daily price/kg*										
Monthly value of catch**										

Note: *1. Average daily price per kg by species = total of average daily prices/kg for days sampled / nos days sampled
**2. Monthly value of catch by fish species = average daily price of catch x total monthly catch by species (given in last column of Table 1 CAS 3)

CATCH ASSESSMENT SURVEY: PARISH CAS 4 - MONTHLY FISH LANDINGS BY WATER BODY

NAME OF WATER BODY:…… ……

DISTRICT……..SUB-COUNTY…… PARISH……..……

MONTH……..……YEAR……NAME OF RECORDER……

Table 1 **Total monthly catches by species** (kg to nearest single decimal place) Compiled from last column, Table 1 of CAS 3

Name of BMU	Species 1	Species 2	Species 3	Species 4	Species 5	Species 6	Species 7	Total*
1.								
2.								
3.								
4.								
5.								
6.								
Total for Parish								

*Note: Total monthly catch of all species combined = sum of all monthly catches by species by BMU

Table 2 **Total monthly catches by gear** (kg to nearest single decimal place) Compiled from last column, Table 2 of CAS 2

Name of BMU	Gear 1	Gear 2	Gear 3	Gear 4	Gear 5	Gear 6	Gear 7	Total*
1.								
2.								
3.								
4.								
5.								
6.								
Total for Parish								

*Note: Total monthly catch of all species combined = sum of all monthly catches by gear type by BMU

Table 3 **Total monthly values of catch** (Ush in millions to 3 decimal places) Compiled from last column, Table 2 of CAS 3

Name of BMU	Species 1	Species 2	Species 3	Species 4	Species 5	Species 6	Species 7	Total*
1.								
2.								
3.								
4.								
5.								
6.								
Total for Parish								

*Note: Total monthly value of all species combined = sum of all monthly values catches by species by BMU

CATCH ASSESSMENT SURVEY: SUB-COUNTY CAS 5 - MONTHLY FISH LANDINGS

NAME OF WATER BODY:…… ……

DISTRICT……..SUB-COUNTY…… PARISH……..……

MONTH……..……YEAR……..NAME OF RECORDER……..……

Table 1 **Total monthly catches** (kg to nearest single decimal place) Compiled from last row of Table 1 of CAS 4

Name of Parish	Species 1	Species 2	Species 3	Species 4	Species 5	Species 6	Species 7	Total*
1.								
2.								
3.								
4.								
5.								
6.								
Total S/county								

*Note: Total monthly catch of all species combined = sum of all monthly catches by species by parish

Table 2 **Total monthly catches by gear** (kg to nearest single decimal place) Compiled from last row of Table 2 of CAS 4

Name of Parish	Gear 1	Gear 2	Gear 3	Gear 4	Gear 5	Gear 6	Gear 7	Total*
1.								
2.								
3.								
4.								
5.								
6.								
Total S/county								

*Note: Total monthly catch of all species combined = sum of all monthly catches by gear type by parish

Table 3 **Total monthly values of catch** (Ush in millions to 3 decimal places) Compiled from last row of Table 3 of CAS 4

Name of Parish	Species 1	Species 2	Species 3	Species 4	Species 5	Species 6	Species 7	Total*
1.								
2.								
3.								
4.								
5.								
6.								
Total S/county								

*Note: Total monthly value of all species combined = sum of all monthly values catches by species by parish

CATCH ASSESSMENT SURVEY: DISTRICT CAS 6 - MONTHLY FISH LANDINGS

NAME OF WATER BODY:……..……DISTRICT……

MONTH……YEAR……..……NAME OF RECORDER……

Table 1 **Total monthly catches** (kg to nearest single decimal place) Compiled from last row of Table 1 of CAS 5

Name of Sub-county	Species 1	Species 2	Species 3	Species 4	Species 5	Species 6	Species 7	Total*
1.								
2.								
3.								
4.								
5.								
6.								
Total for District								

*Note: Total monthly catch of all species combined = sum of all monthly catches by species by sub-county

Table 2 **Total monthly catches by gear** (kg to nearest single decimal place) Compiled from last row of Table 2 of CAS 5

Name s/county	Gear 1	Gear 2	Gear 3	Gear 4	Gear 5	Gear 6	Gear 7	Total*
1.								
2.								
3.								
4.								
5.								
6.								
Total for District								

*Note: Total monthly catch of all species combined = sum of all monthly catches by gear type by sub-county

Table 3 **Total monthly values of catch** (Ush in millions to 3 decimal places) Compiled from last row of Table 3 of CAS 5

Name S/county	Species 1	Species 2	Species 3	Species 4	Species 5	Species 6	Species 7	Total*
1.								
2.								
3.								
4.								
5.								
6.								
Total for District								

*Note: Total monthly value of all species combined = sum of all monthly values catches by species by sub-county

CATCH ASSESSMENT SURVEY: LAKE WIDE CAS 7 - MONTHLY FISH LANDINGS

NAME OF WATER BODY:…….. ……

MONTH……YEAR……..……NAME OF RECORDER…….

Table 1 **Total monthly catches** (kg to nearest single decimal place) Compiled from last row of Table 1 of CAS 6

Name of District	Species 1	Species 2	Species 3	Species 4	Species 5	Species 6	Species 7	Total*
1.								
2.								
3.								
4.								
5.								
6.								
7.								
8.								
9.								
10.								
Total for Lake								

*Note: Total monthly catch of all species combined = sum of all monthly catches by species by district

Table 2 **Total monthly catches by gear** (kg to nearest single decimal place) Compiled from last row of Table 2 of CAS 6

Name of District	Gear 1	Gear 2	Gear 3	Gear 4	Gear 5	Gear 6	Gear 7	Total*
1.								
2.								
3.								
4.								
5.								
6.								
7.								
8.								
9.								
10.								
Total for Lake								

*Note: Total monthly catch of all species combined = sum of all monthly catches by gear type by sub-county Sheet 1 of 2

CATCH ASSESSMENT SURVEY: LAKE WIDE CAS 7 - MONTHLY FISH LANDINGS

NAME OF WATER BODY:…… ……

MONTH……YEAR……..……NAME OF RECORDER……

Table 3 **Total monthly values of catch** (Ush in millions to 3 decimal places) Compiled from last row of Table 3 of CAS 6

Name of District	Species 1	Species 2	Species 3	Species 4	Species 5	Species 6	Species 7	Total*
1.								
2.								
3.								
4.								
5.								
6.								
7.								
8.								
9.								
10.								
Total for Lake								

*Note: Total monthly value of all species combined = sum of all monthly values catches by species by district

Sheet 2 of 2

7.3 Fisheries Research Information

Whilst the monthly CAS system provides information directly or indirectly for many of the key fisheries indicators listed in section 6.10, there is still need to obtain additional information derived from specific studies to answer management questions posed during regular meetings of fisheries management organisations. The role of research is to provide answers to these questions.

In an attempt to bring a competent research capability closer to resource users, Fisheries Research Units (FRU) have been set up within LAGBIMO and LAKIMO. The FRUs comprise District Fisheries Officers and their staff, and members of BMUs. Training of the FRUs is needed and will be delivered this year.

A management question being answered at the moment by FRUs is "what is the CPUE of of dominant commercial species in standard gill nets of selected mesh sizes?" The answers to this question will provide invaluable management information on changes in the relative abundance of dominant species in lakes George and Kyoga. Other areas of research to be undertaken in the future include:

- Determination of size at first maturity of dominant species in comparison to selectivity curves of gill nets and selectivity of different hook sizes;
- Impact of No Fishing Zones on fish abundance;
- Impact of long-lining in shoreline No Fishing Zones relating to net fisheries;
- Impact of tycoon fishing (beating water) in open waters of lakes;
- Exploring ways to minimise net loss due to floating sudds;
- Exploring ways to sustainably harvest under-exploited species.

The Fisheries Resources Research Institute (FIRRI) based in Jinja has the national mandate and expertise for providing research information to guide fisheries policy, management and development in Uganda. FIRRI is particularly keen to promote participatory research at local level, and will undoubtedly play a major role in building local research capabilities and in monitoring the performance of local FRUs.

7.4 Fisheries MCS Information

A vital role of BMUs and local governments in fisheries co-management is to undertake monitoring, control and surveillance (MCS) of fisheries activities. This involves gathering information on illegal fisheries activities on water and land, and undertaking patrols to apprehend offenders and reduce the incidence of illegal activities.

Unfortunately, the history of fisheries patrolling in many areas has a record tarnished by accusations of malpractice by patrol units, hiding behind systems that lack transparency and accountability of patrol procedures and results. In response, DFR has published Standard Operating Procedures to guide and regulate MCS operations in Uganda.

At local level, LAGBIMO has established its own MCS Unit operating under the direction and supervision of the Fisheries Management Committee. The MCS Unit works in close collaboration of the DFR national representative responsible for fisheries law enforcement, the Regional Fisheries Officer.

The LAGBIMO FMC has introduced local standardised MCS procedures for its MCS Unit, in accordance with the national Standard Operating Procedures (see chapter 10 for details). It has also adopted a detailed MCS reporting system to promote transparency and accountability of the Unit.

The MCS Report consists of three forms presented below.

MCS Form 1:

- This form provides detailed background information on patrol operations including timing, duration, patrolled area, boats and vehicles used, staff in patrol team. The form is certified as true and correct by a BMU Chairperson or local government leader.

MCS Form 2:

- This form reports the results of an individual patrol. Every patrol is allocated an individual serial number by which it can be identified and the date of the patrol is recorded next to this serial number. Since there may be more than one sheet in a single report, a sheet number if filled using the format 1 of x pages, 2 of x pages and so on.
- The first column records the case number, 1,2,3 etc for each different offence. The remaining columns record details of boats, gears, crew, boat owner, catch and regulation broken.
- If a boat is licensed, its registration number is recorded in the second column. If unlicensed, then this is noted under boat type. Coding of boat and gear types and species caught are the same as in CAS 1, and are given as notes at the bottom of the form.
- Gear numbers and mesh and hook size are recorded since these are often the cause of the offence.
- The name and fishing permit numbers are recorded together with the name of the boat owner and the BMU where the boat is registered.
- The illegal catch is recorded by dominant species and number of fish caught.
- Finally, the offence committed in noted in the last column.

MCS Form 3:

- This form provides a monthly summary report on what actions, if any, were subsequently taken after each patrol and case. The form links directly to details in MCS Form 2 by recording the same patrol serial number and case number.
- Details are recorded on whether the boat and gears were destroyed or confiscated. It records whether crewmembers and boat owners were fined, imprisoned and licences withdrawn. Details of disposal of the catch are also recorded.
- The monthly summary provides data that can be used to obtain key fisheries management indicators listed in section 6.10.

LAGBIMO FISHERIES LAW ENFORCEMENT ON LAKE GEORGE & KAZINGA CHANNEL

PATROL INFORMATION **MCS Form 1**

Patrol Number (Serial No. for 2003)……

Date……..……..……..……..……..……

Start time (am/pm)……..……

End Time (am/pm)……..……..

Patrol boat starting location……..

Patrol boat end location……..……

Area patrolled……

Number of patrol vessels……..……

Type of patrol vessels……..……..

Owner of patrol vessels……

Number of patrol engines……..……

Size of engines (hp)……..……..

Distance covered by patrol (in km)……..……

Number of patrol persons (also list names separately)……..……..

Name of patrol leader……

Signature of Patrol leader……..

Institution of patrol leader……

Patrol vehicle (Reg No.)……

Patrol vehicle owner……..

Patrol Certified by:

Name:……..Position……

Date:……..

LAGBIMO FISHERIES LAW ENFORCEMENT ON LAKE GEORGE & KAZINGA CHANNEL

PATROL RESULTS

MCS Form 2
Sheet No. ……

Patrol Number (Serial No. for 2003): …….. **Date ……..**

Case No.	Boat Reg No.	Gears			Crew Arrested		Boat Owner		Fish Catch		Offence
		Type	No.	Size	Name	Permit No.	Name	BMU	Species	Number	
Total											

Boats: U = Unlicensed; N = Ntega; D = Dinghy; **Gear Types:** G = Stationary gill net, MG = Muchira gill net, K = Kikubo, LL = Longline, FH = Floating Hooks, T = Traps, O = Others

Fish species: N = Ngege, M = Male, Mb = Mamba, S = Semutundu, B = Bambara

LAGBIMO FISHERIES LAW ENFORCEMENT ON LAKE GEORGE & KAZINGA CHANNEL

MONTHLY PENALTIES AND PROSECUTION RESULTS

MCS Form 3
Sheet No. …….

Month……..
..
Date……..
….
Recorder……..

Patrol Serial & Case No.	Boat		Gears		Crew			Boat Owner			Catch	Comments
	Reg No.	Destroyed Y/N	Confiscated Y/N	Destroyed Y/N	Fined (Ush)	Prison (mths)	Permit withdrawn Y/N	Fined (Ush)	Prison (mths)	Licence Withdrawn Y/N	Destroyed Y/N	Explain where answers are No
Total												

7.5 Social and Economic Information

Social

Lake Management Plans should have a strong focus on people and how to reduce their poverty focus and improve the livelihoods of men and women. They should also focus on stimulating economic growth and at the same time safeguard and improve environmental conditions. Plans that do not articulate these aims are unlikely to compete well for the limited financial resources available through local government development planning.

Whilst BMUs are primarily concerned with fisheries management, they also have a responsibility to make wider Beach Development Plans and have a key role to play in making and implementing Lake Management Plans.

In order to give BMUs an idea of the types of information used to monitor the delivery of a Lake Management Plan, the set of purpose level indicators of the Lake George Basin Management Plan are listed as follows:

- 30% of women and barias in BMUs report that they have a greater say in decision-making
- 30% of women in BMUs report improvement in household income from lake management
- 50% of households in BMUs report increased variety in food intake as a result of improved lake management
- 20% increase in number of PLE graduates from BMUs enrolling in secondary schools
- 10% increase in number of FAL learners passing the exam within landing site communities (both sexes)
- 10% increase in total enrolment P1 to P7 (male and female) within landing sites
- 10% increase in the number of households having a latrine at landing sites
- 10% reduction in the number of outpatient diarrhoea cases from landing site communities
- 10% reduction in number of under 5s inspected as severely malnourished in landing site communities

The livelihood indicators at purpose level relate to people's role in decision-making, people's incomes, nutrition, education, literacy and health. These wider benefits are expected by achieving sustainable fisheries resource management. It can be seen from the list above that BMUs play an important role in providing various types of livelihood information. This information should be collected using standardised formats by trained enumerators, preferably from local governments or local NGOs.

In addition, BMUs have valuable social information contained within their own register of members. This information will be collected and compiled by committees of BMU Associations e.g. Sub-county and District BMUCs and local government staff. The registers provide a wealth of information upon which to base stakeholder analyses and which can be related to analyses of who is accessing and benefiting from fisheries.

Revenue

In order to give BMUs an idea of the types of economic information used to monitor the delivery of a Lake Management Plan, the set of output level indicators of the Lake George Basin Management Plan are listed as follows:

- 10% increase in total monthly fish catch for Lake George
- 10% increase in the value of monthly fish catch
- 50% increase over a baseline in revenue from fisheries to sub-counties and districts
- Increase in revenue generated by BMUs at all landings and used for fisheries management
- Increase in budget allocation to LAGBIMO from 4 sub-counties and 3 districts

Economic information needed for making management plans relates to changes in the catch and its value and household incomes. The CAS system is designed to provide information on catch values but this does not automatically translate to increased income to the household since there are cash distributional aspects to consider. A specific indicator on household income from lake management is therefore included at purpose level.

Information on the amount of revenue received by local governments from fisheries licensing and taxation should be obtained by reference to BMU registers. DFOs are obliged to produce this type of information as part of their normal duties but in the past it has not been done completely, particularly with regard to income to sub-counties. An effort will therefore be needed on the part of the agreed compiler of this information to ensure complete submission by sub-counties and districts cross-checked against BMU register of licensed and taxed members.

Information on incomes of BMUs should be derived from annual audits carried out and reported by sub-county accountants. Incomes of lake management organisations should be obtained from annual financial reports and audits.

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8. CAPTURE FISHERIES MANAGEMENT MEASURES

8.1 Management Measures Available in Ugandan Fisheries

The National Fisheries Policy clearly articulates the current threats to fisheries resources in Uganda. There are problems of overfishing caused by an increasing number of people exploiting finite fish resources. There are problems of the widespread use of harmful and illegal gears and methods. These very often target the capture of immature fish before giving them a chance to breed and reproduce. On three major lakes, Victoria, Albert and Edward, there are also issues concerning exploitation of internationally shared fish stocks. Illegal activities are by no means confined to water, but are widespread on land through processing and marketing of immature fish. In addition, various "external" environmental factors that reduce the quality of fish habitats and fish growth and abundance.

To reduce these varied threats to resources and to increase productivity of aquatic systems, the government supports its policy and plans through detailed legislation that sets out the rules and regulations on how fisheries in Uganda should operate. Non-compliance with certain regulations is widespread, particularly in relation to the capture and marketing of immature fish. A decentralised co-management approach is seen as the best way to improve this situation and to secure the resource base for future generations.

There is a wide range of measures that can be taken to protect fish resources. These measures can be categorised in different ways. In the following sections, measures are divided broadly into those that control the amount of fishing applied on a fishery (sections 8.2 and 8.3), and other technical measures that control the size or age of capture of fish (sections 8.4 and 8.5). In the final section (8.6), an example is given from Lake George to demonstrate how both types of measures are being introduced at local level through bye-laws.

8.2 Controlling the Amount of Fishing

World-wide experience clearly reveals that open-access fisheries, where any who wishes to has a right to exploit resources, leads to overfishing, declining resources and reduced returns to users. In Uganda, fisheries are not truly open-access since fishermen are supposed to be licensed. However, it is only on a few lakes e.g. George, Edward and Wamala, where central government has set on upper limit on the amount of fishing applied to these fisheries.

The range of measures used by central government to regulate fishing effort include the control of the following:

- Number of licensed fishing boats (relates to catching power of fishing fleet)
- Number of gears (nets and hooks) per boat (relates to catching power of boat)
- Size of gill nets (length and depth – relate to catching power of net)
- Size of fishing boats (length – relates to number of gears that can be carried)
- Number of landing sites (facilitates control & monitoring of fleet size)

At local level, informal rules can be made to further control effort (and facilitate monitoring) by regulating:

- Fishing times and duration (relates to catching power of fishing fleet)
- Times and places of landing fish (relates to catching power of fishing fleet)
- Number of boats constructed (relates to size of fishing fleet)
- Transfer of licensed boats between BMUs (relates to localized catching power of fishing fleet)

Whilst, the control of the number of boats licensed to fish a particular water body is a very useful management mechanism, the actual amount of fishing depends on the total number of gears set in the water and their duration of fishing.

An example is taken from Lake George to demonstrate how fishing effort is regulated through restrictions on boat and gear numbers.

In December 2001, the DFR increased the number of licensed fishing boats and permitted numbers of gear (gill nets) that could be carried per licensed boat on Lake George and its Kazinga Channel (see table below).

Regulation	**Past**	**Present**
Number of licensed boats	188	326
Number of gill nets per boat	10	30
Resultant Gear Nos at 8 BMUs		
Number of nets on lake/channel	1,880	9,780

This is a good example of central government responding to local stakeholders. Using the best scientific information available, the total licensed fishing effort was considerably increased. Under the new co-management approach, BMUs and local government partners must now ensure good compliance with the new regulations and monitor their impact on fish stocks.

Decisions on how to best adjust fishing effort are complex and sometimes conflicting. They should be influenced strongly by the agreed key management objectives. As a theoretical example, if co-managers of the Lake George fishery decided that the most important aim of management was to sustainably maximize employment opportunities, then under the existing law, they could decide that each fishing boat should use a maximum of only 15 gill nets. This would allow boat numbers to double to 652 without changing the overall legal limit of fishing effort of 9,780 nets.

Assuming this was the maximum amount of fishing that the fishery could sustain, they could then lobby the centre for such a change to be introduced. In doing so, however, this management option would result in a reduction of the catch and income and of the original fishermen and livelihoods may be badly affected. It is important therefore that the potential impacts of major management decisions are carefully analysed and then agreed by consensus before action is taken.

8.3 Control of Fisheries Access

In order to avoid overfishing and resource depletion, it is the policy in Uganda to work towards the introduction of participatory controlled access to all major fisheries. The management tool use to control access is through fisheries licensing and taxation. This also allows an opportunity for the economic benefits from fisheries resources to be shared more widely throughout rural communities by the revenue generated from licences and taxes submitted to local governments to fund development programmes.

Fisheries resources are common property shared resources, and therefore it is fair that resource users who profit from these resources should pay to have access to them and benefit from them. As part of putting policy into practice, DFR has decentralised the process of controlling access to fisheries resources by delegating licensing powers to districts.

On controlled lakes George and Edward, BMUs are playing a very important role in the selection process of applicants for fishing boat licences. They do this through BMU Verification Committees who examine and evaluate each application. They do this using an agreed standard procedure and application form. An example of the first part of an application form from Kasese District is reproduced below.

Recommendations on applicants are based on the following livelihood dependency and governance criteria:

- Long-term resident in local community
- High family dependence on fishery
- Sole recommended applicant for family
- Good compliance history with fisheries regulations
- Good capacity to run fishing operation

In addition, a fixed share of new licences is allocated to women and fishing crew.

As part of a national programme to introduce controlled access to fisheries through licensing, it is likely that this participatory system will be extended to others lakes.

KASESE DISTRICT LOCALGOVERNMENT

APPLICATION FOR A FISHING VESSEL LICENCE (FORM 1)

WATER BODY……..…BMU……YEAR…….

SECTION A: PERSONAL DETAILS

1. FULL NAME (Block letters)……..…

2. Nationality……3.Age……..……..4. Sex (M/F)……..……..

5. Marital status (Married, Single, Widow)…… ……6. Number of children.. ……...

7. Residential Address: District…….……Sub-County…….…….
Parish…….Village……..……

8. How many years have resided at above address……..…

9. Who else in your household has or will apply for a fishing vessel licence, give names……..

10. Fisheries profession (e.g. boat owner, baria, fishmonger, fish processor etc) specify ……..
……..……
11. List in order of importance the top 3 sources of your income……..…

12. If boat owner, are you licensed Y/N……..If yes, give registration number……..…

13. Number of years that you personally operated in fisheries at the landing site of application…….

14. List specific years..……...

15. Have you held a fishing vessel licence (Yes/No)……16.At which landing site…...……..…

17. List years licenced……....…18.Last licence No……..…

19. Have you ever been convicted in law for a fisheries offence(Yes/No)……..

20. Have you been ever warned for breaking fisheries regulations by a fisheries officer/landing site committee/rehabilitation committee (Yes/No)……..…

21. If not already owned, are you able to purchase legal gears and a fishing vessel……..

22. Are you willing to share a fishing vessel licence? (Yes/No)……..…

Applicant: I certify that the above information is true and correct

Signature……Date……..……

8.4 Controlling the Size/Age of Fish Caught

There is a wide range of control measures used by government to regulate the size or age at capture of different fish species. Different types of legal measures set at national level include, among others:

a. ban on the use of indiscriminate gears and methods e.g. poisons, explosives that kill all sizes, ages and species;
b. ban on the use of certain gears that target immature or breeding fish e.g. beach seine, cast net, beating water to drive fish into nets;
c. size restriction on gear e.g. gill net mesh size; hook size
d. size restrictions on marketed fish e.g. fish lengths and slot size in processing factories

A common aim of all measures is to give fish a chance to grow, add value, reach sexual maturity and breed at least once before being caught. The precise regulations designed to achieve this vary between fisheries and are tailored to suit the individual circumstances of each.

In the multi-species, multi-gear fisheries of Uganda, it is difficult to introduce control measures that optimise the capture of species of different sizes. A decision must therefore be taken on which species should be targeted when setting the control measures. The two species that dominate Ugandan fisheries are Nile perch and Nile tilapia. These are large species, which means that setting gill mesh sizes to target their sustainable capture often means that smaller species are left under-exploited.

8.5 Protecting Fish Breeding and Nursery Areas

Another very important way of regulating size or age at capture, and avoiding the capture of fish at critical periods in their life history i.e. at birth, and when breeding, is by establishing No Fishing Zones within breeding areas.

As an example, there is an intention to introduce a No Fishing Zone for gill nets within 100 metres from the waters edge along the whole shoreline of Lake George and all its islands and 50 metres from the waters edge on both sides of the Kazinga Channel. This is designed principally to protect ngege (Nile tilapia) on its spawning grounds and should be considered for introduction on other lakes in Uganda.

8.6 Example of Fisheries Bye-laws

An example of part of a set of bye-laws currently under consideration by BMU Assemblies on Lake George is presented below. The bye-laws were developed by the LAGBIMO Fisheries Management Committee and modified by the chairpersons of all BMUs on the fishery. The bye-laws are in consonance with national legislation and the BMU Guidelines.

There are a total of 17 individual bye-laws, of which 5 relate to controlling fishing effort (Nos 1, 5, 9, 10 and 11); 5 relate to regulation of fish size or age at capture (Nos 3, 4, 6, 7, and 16); 2 relate to fish marketing (Nos 2 and 8); 2 relate to

management processes (Nos 15 and 17) and 3 relate to environmental protection of water or the landing site (Nos 12, 13 and 14).

The set provides a balanced package of local regulations that build on national legislation. They are presented here to stimulate thought and possible actions by BMUs on other water bodies.

UGANDA GOVERNMENT

UNDER THE LOCAL GOVERNMENT ACT 1997
AND
THE FISH AND CROCODILE ACT CAP 197 OF 1964
AND
THE FISH (BEACH MANAGEMENT) RULES 2003 No .35

In exercise of powers conferred on the ……Local council by section 39 of the Local Government Act and section 43 of the Fish Act 1964 as amended by Act No.3 of 1967, these bye-laws are made this ……day of ……2004.

The bye-laws may be cited as Fish (Beach Management) bye-laws 2004

Interpretation:

“Beach Management Unit” has the same meaning as that set out in the Fish (Beach Management) Rules 2003.

"No Fishing Zone" means an area designated in the bye-law where specified fishing activities are prohibited at all times.

"100 metres from the shoreline" means the length equivalent to two mounted gillnets at 50% hanging ratio.

"50 metres from the shoreline" means the length equivalent to one mounted gill net at 50% hanging ratio.

"Check point" means a place agreed at a meeting of the BMU Assembly where all fishing boats shall land for counting and weighing the fish catch.

BYE-LAWS

1. No person shall be permitted to land fish at a gazetted landing site from 7.00 p.m. to 6.00 a.m. Any person who contravenes this bye-law shall have committed an offence and shall be liable on conviction to a fine of not exceeding 40,000 shillings or an imprisonment for a period not exceeding 30 days or both. Any fishing boat that is used in contravention of this bye-law shall be confiscated for a period of not exceeding 30 days and not be permitted to be used for fishing during this period.

2. No person shall be permitted to buy or sell fish on waters of Lake George and the Kazinga Channel. Any person who contravenes this bye-law shall have committed

an offence, and shall be liable on conviction to a fine not exceeding 40,000 shillings or imprisonment of 30 days or both.

3. No person shall carry out fishing activities using gill nets within 100 metres from the waters edge along the whole shoreline on Lake George and all its islands within sub-county boundary limits and 50 metres of the waters edge on both sides of the Kazinga Channel within sub-county boundary limits. This area is designated as a No Fishing Zone (NFZ) within sub-county boundary limits with respect to the use of gill nets. Any person who contravenes this bye-law shall commit an offence and shall be liable on conviction to a fine of not exceeding 40,000 shillings or an imprisonment not exceeding 3 months or both.

4. No person shall be permitted to remove fish from nets before landing. Any person who contravenes this bye-law shall have committed an offence and is liable on conviction to a fine of not exceeding 40,000 shillings or imprisonment of not exceeding 30 days or both. Any fishing boat that is used in contravention of this bye-law shall be confiscated for the period of 14 days and not be permitted to be used for fishing during this period.

5. No gill nets shall be permitted to be set on the lake or the Kazinga Channel between the hours of 11am and 4pm. Any person who contravenes this bye-law shall have committed an offence and is liable on conviction to a fine not exceeding 40,000 shillings or imprisonment for a period not exceeding 30 days or both. Any fishing boat that is used in contravention of this bye-law shall be confiscated and the fishing boat licence withdrawn from the holder.

6. No person shall be permitted to carry in a fishing boat, a pole of a length exceeding one metre that is not a paddle. Any person who contravenes this bye-law is liable on conviction to a fine of not exceeding 40,000 shillings or imprisonment for a period not exceeding 1 month or both. Any fishing boat that is used in contravention of this bye-law shall be confiscated for a period of not exceeding 30 days and not be permitted to be used for fishing during this period.

7. Any person operating a fishing boat shall ensure that the boat lands only at established BMU checkpoint. Any person who contravenes this bye-law is liable on conviction to a fine of not exceeding 40,000 shillings or imprisonment for a period not exceeding 3 months or both. Any fishing boat that is used in contravention of this bye-law shall be confiscated for a period of not exceeding 30 days and not be permitted to be used for fishing during this period.

8. No person shall be permitted to buy or sell fish from a canoe before it has landed at a BMU checkpoint. Any person who contravenes this bye-law is liable on conviction to a fine of not exceeding 40,000 shillings or imprisonment for a period not exceeding 1month or both.

9. No person shall be permitted to replace a fishing boat without first applying for and obtaining written authorisation from the Chairperson of the Beach Management Unit. No person shall construct a boat within the sub-county without a valid operating licence issued by the Sub-county Chief. A person applying for permission to construct a fishing boat must provide documentary evidence of the registration number of the boat being replaced and the name and licence number of the owner of the boat, verified by the Chairperson of the BMU at which the boat to be replaced is registered. In the case where a fishing boat is constructed under a new boat licence, written authorisation from the Licensing Officer must first be obtained specifying which BMU has been allocated the new boat licence, the name of the boat owner,

the fishing vessel licence number and the fishing boat registration number. Any person found within sub-county in possession of a new boat without written approval of a BMU Chairperson, shall have committed an offence, and the boat shall be destroyed.

10. No person shall import a fishing boat into the sub-county without first obtaining written authorisation from the Sub-county Chief. The importer of the fishing boat must provide written evidence of the registration number of the boat being replaced and the name and licence number of the owner of the boat, verified by the Chairperson of the BMU at which the boat to be replaced is registered. In the case where a fishing boat is constructed under a new boat licence, written authorisation from the Licensing Officer must first be obtained specifying which BMU has been allocated the new boat licence, the name of the boat owner, the fishing vessel licence number and the fishing boat registration number.

11. No person shall temporarily transfer any fishing boat from the beach at which it is registered, without the consent of the Beach Management Unit Chairperson, the licensing officer and the registered boat owner. Anyone who contravenes this bye-law shall have committed an offence, and will be liable on conviction to a fine of not exceeding 40,000 shillings or imprisonment for a period not exceeding 30 days or both. Any fishing boat that is used in contravention of this bye-law shall be confiscated and not be permitted to be used for fishing during this period.

12. No person shall be permitted to wash clothes or vehicles in the lake, bathe in the lake, dispose of noxious waste into the lake or on the lake shore within a distance of 100 metres from the waterline. Any person who contravenes this bye-law shall have committed an offence and is liable on conviction to a fine not exceeding 40,000 shillings.

13. A BMU will establish official waste disposal sites in accordance with local environmental regulations.

14. No person shall use dry cells as sinkers, and kavera (polythene bags) as floats. Any person who contravenes this bye-law shall have committed an offence and is liable on conviction to a fine not exceeding 40,000 shillings.

15. In accordance with Statutory Instrument No.35, The Fish (Beach Management) Rules 2003, part VIII 20(c), Every fish folk registered with the BMU and operating at the beach shall pay a user fee or fish equivalent as agreed in the BMU Assembly minute …….. attached annex 1. Any person who contravenes this bye-law shall have committed an offence and is liable on conviction to a fine not exceeding 10,000 shillings.

16. All fishnets shall be mounted at 50% mounting ratio. Any person who contravenes this bye-law shall have committed an offence and is liable on conviction to a fine not exceeding 10,000 shillings.

17. No BMU registered member shall absent himself/herself from any official BMU Assembly meeting without a valid reason and notice given to the BMU Chairperson. Any person who contravenes this bye-law shall have committed an offence and is liable on conviction to the following penalties:

    - First and second offenders shall be warned in writing by the BMU Chairperson
    - Third offenders shall be liable to a fine not exceeding 5,000 shillings.

- Persistent offenders shall be denied access to the fishery through annual BMU membership registration

These proposed bye-laws are hereby recommended for submission to and approval of:

……..Sub-county Council

by ……BMU

Date: ……day of ……2004.

Approved by……..

Name in CAPITALS……

Chairman, ……BMU

Sub-county……..

District……

9. IMPLEMENTING MANAGEMENT PLANS

This chapter sets out some of the key components of implementing management plans, including both fisheries management and beach development plans. The chapter looks at how a plan may be funded, how fisheries regulations may be enforced, safety on the water, ensuring good hygiene and sanitary conditions for improved fish quality and value, and how wider beach development objectives may be implemented.

9.1 Funding plan implementation

Funds for plan implementation may come from a number of sources, including:

- Contributions from BMU members for the operations of the BMU;
- From local and central government through components of the plan being included in local government development plans;
- From development partners and programmes.

It is critically important for BMUs to lobby for their priorities to be included in local government development plans and for development partners and programmes to include the BMU priorities in their work plans.

9.2 Compliance with Fisheries Regulations

An essential part of a Fisheries Management Strategy is the establishment of a monitoring, control and surveillance programme. There are Standard Operating Procedures produced at national level to guide the operation of centralised MCS activities. BMUs have a statutory duty to ensure compliance with fisheries regulations within their own area of jurisdiction, but care must be taken concerning the procedures used to do this. Given the generally tarnished history of MCS, it is very important that BMU Chairpersons and local government fisheries officers who are delegated "Authorised Officers" ensure that there is fairness, transparency and accountability in all their MCS procedures.

The Fisheries Management Committee of LAGBIMO offers an example of a recently developed MCS system adopted on Lake George and the Kazinga Channel. The FMC has set up a MCS Unit with membership from BMUs, fisheries officers and police. It works with the local representative of DFR, the Regional Fisheries Officer. The procedures developed and agreed by the FMC to guide MCS operations are outlined below.

Patrol Operating Procedures for Lake George:

Unlicensed boats:

1 Unlicensed fishing boats shall be towed to the nearest Beach Management Unit shown to the BMU Committee and destroyed.

***Licensed boats*:**

2 Licensed boats shall be towed to the nearest BMU and shown to the BMU Committee. The part of the boat with the license Registration number shall be

cut off and taken as an exhibit for prosecution (Note: this has not yet been implemented on Lake George). The BMU Committee shall keep the rest of the boat frame. The BMU Committee shall enter this action into their management records.

Gears:

3 No gear shall be destroyed on the lake. Confiscated gears shall be towed to the nearest BMU and a sample of the nets/gears shall be kept for court action, if the gear is from a licensed boat. If it is from an unlicensed boat it will be destroyed immediately. The confiscated gears from licensed fishing boats shall then be handed to the BMU Chairperson who will receive them in writing and sign an acknowledgement receipt.

Fish:

4 No fish shall be disposed of in the lake. They shall be landed at the nearest BMU and handed over to the BMU Chairperson who will receive the fish in writing and in presence of a witness. This fish must not be sold. The BMU Chairperson shall distribute the fish to the community members in presence of the patrol team.
Samples of the fish shall be processed and kept for court action.

***People* (offenders):**

5 The offenders (arrested persons) shall not be released while still on the water.
6 The offenders (arrested persons) shall be reported to the nearest police.
7 The nearest BMU Chairperson shall receive and record the details of all the arrested persons.

9.3 Safety on Water

During bad weather conditions, lakes can be very dangerous and accidents relating to the capsize of fishing and passenger boats are often reported in the press. Unfortunately, there is no systematic system for collecting information on accidents on water and loss of lives resulting from them. Here, BMUs can play a major role, especially when linked to their new legal powers and responsibilities.

BMUs have a statutory obligation to enforce, in collaboration with central government or local governments, safety guidelines for fishing operations provided in the Fourth Schedule of the BMU Rules. Duties listed in the guidelines are set out below.

Safety Guidelines for Fishing Operations:

1. The Beach Management Unit shall ensure :-

(a) Fishers and fish transporters shall at all times use life saving devices such as life jackets and life buoys during fishing operations;

(b) The vessels used in fishing and fish transport must be sea-worthy, have a water line clearly marked and shall not be loaded above the water line.

2. The Beach Management Unit committee shall ensure the integration of local fishing vessels into search and rescue operations.

The duties listed above share the common aims of reducing vulnerability on water and loss of human life. The guideline on using life saving devices is very relevant but its implementation requires efforts on the part of all BMU committees. At the moment, life jackets are relatively expensive and not locally available on most water bodies. Alternative flotation devices e.g. plastic jerry cans or car inner tubes are better than carrying nothing at all in fishing boats and these can be obtained easily by fishing crew and boat owners. Publicity concerning this important issue has recently been raised by the NGO, Lake Rescue, with support from the French Embassy through a series of cartoons published in the national press. Part of the series is presented in Figure 9.1.

The guideline on maintaining fishing boats in sea-worthy condition and showing a water line is a shared responsibility of the BMU and the local fisheries officer who will provide technical advice and inspect fishing boats.

9.4 Fish Processing and Marketing

Widespread improvements in fish quality and value can be achieved by introducing simple improvements in general hygiene and sanitary procedures for fish handling, processing and marketing at landing sites.

BMUs have a statutory obligation to enforce, in collaboration with government or local government, the Fish Quality Assurance and Sanitary Guidelines as provided in the Fifth Schedule of the BMU Rules. Duties listed in the guidelines are set out below. Those in section 1 relate to hygiene and fish quality whilst those in sections 2, 3 and 4 relate more directly to hygiene, water supply and sanitation.

Fish Quality Assurance and Sanitary Guidelines for the Beach:

1. Requirements for Handling Fish

    (c) Fishing vessels and fish transport boats shall always be cleaned and well maintained;
    (d) Fish transport boats shall not be used for transport of people and other cargo;
    (e) Fish shall be handled properly to prevent contamination, spoilage and preserve wholesomeness;
    (f) Fish shall not be placed on the bare ground;
    (g) Fresh fish shall be properly iced after catching, trans-shipment and during transportation in clean containers.

2. Requirements for Fish Landing Sites

    (a) There shall be sufficient toilet facilities for operators at the fish landing site;
    (b) There shall be potable water;
    (c) There shall be suitable and clearly marked areas for waste disposal;
    (d) There shall be suitable unloading, display, and landing facilities for fish which shall be kept clean.

2. All persons at the beach shall use toilets for human waste disposal.
3. Beach Management Unit shall establish and maintain hygienic and sanitary conditions in the beach.

Publicity concerning the need for improved sanitary facilities and habits at fish landing sites has been raised again by the NGO, Lake Rescue, with support from the French Embassy through the cartoon series published in the national press. Part of the series is presented in Figure 9.2 to illustrate the connection between poor sanitary habits, lake pollution and ill health of people at fish landing sites.

9.5 Wider Beach Development

The broad multi-sectoral aims of lake management plans and beach management plans inevitably mean that BMUs will engage in a range of activities beyond fisheries. In order to do this well, BMUs must learn how to use their lobbying power and the power of BMU associations to attract wider development interventions.

Those BMUs operating within lake management organisations should ensure that they make full use of the lobbying power of these larger bodies to help them obtain resources through wider development programmes. As brief guide, some examples of the possible areas of interventions that can be initiated through BMUs are outlined below.

1. BMUs should immediately plan to establish a physical identity at the landing site by creating a BMU office. The office needs to be secure for the storage of documents e.g. register, cash book, fish movement permits, CAS forms etc. The plan to establish a BMU office, in most cases, will require local government funding and therefore, this should be one of the priority projects to be incorporated into PDPs and SDPs.

2. BMU committees, must not just sit back and wait for funding to arrive and people to come and build their office. They must actively lobby for funds and when they have succeeded, they should mobilize members to engage in self-help activities to help build the office.

3. Many BMUs have been fortunate enough to receive support from ILM in the form of equipment (weighing scales, calculators, register books) to enable them to carry out their statutory functions. In the future, these BMUs and those not fortunate to receive this initial project support, should plan ahead and incorporate equipment needs into development plans. This is particularly important for items such as weighing scales which are absolutely essential for the regular collection of fisheries planning and monitoring information.

4. A large network of legally empowered community BMUs offers an enormous attraction as an entry point for existing development programmes. The local programme coordinators should be contacted by BMUs and their immediate local government partners (e.g CAOs, LCVs, DFOs, DCDOs; Sub-county Chiefs and Chairpersons) and made aware of the BMU civil society network within their area of operation. The types of programmes that should be contacted immediately include those concerned with water supply, sanitation, HIV/AIDS and FAL.

5. The key message is that BMUs should be PROACTIVE in seeking out opportunities for support and implementing development programmes at their own landing sites.

10. MONITORING BMU PERFORMANCE AND IMPACTS

10.1 Why monitor the performance of BMUs?

Beach Management Units are new institutions that provide the foundation of fisheries co-management of Uganda. They also play a very important role in wider beach development. To help track, guide and support their progress in fulfilling their roles, baseline data are needed during the early stages of their operations.

The reasons for undertaking monitoring at the inception stage of BMUs are to:

- Generate baseline data from which progress can be measured each year.
- Identify BMUs where there is good practice that can be transferred to other BMUs.
- Identify problems at an early stage and seek solutions.
- Test the effectiveness of the performance monitoring table in the Guidelines and the processes used to provide the information, and to identify and fill gaps.

This is a critically important opportunity to see how the BMUs are getting on, how far they have gone in carrying out their statutory functions and what constraints they are facing. The information generated will enable both local and central government, and potential development partners, to be better informed about how best to support BMUs.

10.2 The monitoring process

The DFR has issued to local governments a set of performance criteria and a scoring system by which to evaluate the performance of BMUs. The BMU Monitoring Form is available as Annex 4 of the BMU Guidelines. According to the BMU statute, BMUs should be monitored by the Parish or Village executive Committee. In order to support the monitoring process, BMUs and fisheries staff will receive guidance, as part of this training course, on how to use the monitoring form. It is sensible for local fisheries officers to support parish or village representatives in undertaking monitoring of BMUs.

Copies of the BMU Monitoring Form will be provided by district government for all BMUs in the district. The monitor must to record comments, score and the actual source of information that is used to make each score. To help monitors use the BMU Monitoring Form, the table below includes potential sources of information (as given in the BMU Guidelines) and gives guidance on what questions need to be asked and what to look for in order to make each score and how to score.

Scoring should be done after the information is collected and be based on the evidence gathered. Honesty is essential in scoring. If a BMU is not doing very well, then it needs help. Giving a false score to hide faults will not help a BMU. Monitoring forms should be submitted through parish and sub-county authorities to the CAO who should then submit copies to DFR each year.

Guide to completing BMU Monitoring Form

Impact/indicator	Information Source	Comments
1. Administration		
1.1 All fisheries stakeholders listed in BMU register	Check fisheries operators & BMU register	Randomly select ten individuals including the 4 major BMU stakeholder groups, take them to check their own details in the register and record result. Check total member number in register against BMU application approved by DFR. **Performance Score:** **Good:** Full agreement **Satisfactory:** Agreement on ten random persons check but more new members added to register **Not satisfactory:** Random check finds persons not registered; register shows fewer members than on application to DFR
1.2 BMU Committee meetings held at least once a month	BMU minutes of meetings	Record how many meetings have been held since the BMU was formed (record date of BMU formation). Photocopy all minutes for storage with LAGBIMO/LAKIMO. **Performance Score:** **Good:** Meetings held once per month **Satisfactory:** Missed one meeting **Not satisfactory:** Missed two consecutive meetings
1.3 BMU Assembly meetings held at least once a quarter	BMU minutes of meetings	Record number of BMU Assembly meetings since BMU was formed. Photocopy all minutes for storage with LAGBIMO/LAKIMO. **Performance Score:** **Good:** Meetings held once per quarter **Not satisfactory:** One or more meetings missed
1.4 BMU Committee includes 30% boat crew members & 30% women	BMU application form submitted to CFO	Refer to BMU application form – copy kept by BMU, DFO and lake wide organisation. **Performance Score:** **Good:** Percentages reached for crew & women **Satisfactory:** Percentages not reached for crew & women but reasonable explanation given. Note: in some fisheries in wetlands/minor lakes, boat owners are crew and there are few

		women, therefore allowances should be made in scoring with an explanation. **Not satisfactory:** Percentages not reached for crew & women and no reasonable explanation given.
1.5 Views of women & boat crew expressed in BMU Committees	BMU minutes of meetings	Review minutes and record number of times views recorded and whether accepted or acted on **Performance Score:** **Good:** Crew & women's views recorded in all meetings **Satisfactory:** Crew & women's views recorded in 3 out 4 meetings **Not satisfactory:** Crew & women's views not recorded in meetings or recorded in less than 3 out of 4 meetings.
2. Financial management system		
2.1 BMU Bank Account operating	Bank book, statements	Request to see evidence **Performance Score:** **Good:** Bank book, statements show regular use each week & month **Satisfactory:** Bank book, statements show regular use each month **Not satisfactory:** Bank book, statements show irregular use with gaps between weeks & months
2.2 Cash book balanced monthly	Ledger book	Review ledger book **Performance Score:** **Good:** Monthly balances achieved **Not satisfactory:** Monthly balances not achieved, financial discrepancies revealed.
2.3 All income and expenditure recorded	Ledger book	Review ledger book and sample of receipts. Ask BMU members about various transactions and check they are documented. **Performance Score:** **Good:** All income and expenditure recorded **Satisfactory:** Some small omissions but reasonable explanation given **Not satisfactory:** Many omissions without reasonable explanation

2.4 Quarterly & annual financial reports show detailed balance sheets	BMU minutes of meetings	Check quarterly and annual reports **Performance Score:** **Good:** Balance sheets correctly completed **Not satisfactory:** Balance sheets absent or incorrect
2.5 Quarterly & annual budgets approved by BMU Assembly	BMU minutes of meetings	Check if the BMU has drawn up a budget. If yes, take a copy. Check if it was approved by the BMU Assembly. **Performance Score:** **Good:** Quarterly & annual budgets approved by BMU Assembly. **Satisfactory:** Evidence of Assembly approval of costs and income but BMU needs help in setting up clear budgets. **Not satisfactory:** Little or no evidence of Assembly approval of costs and/or income.
2.6 Annual audit of accounts undertaken	Sub-county report	Check annual audit report of sub-county accountant. **Performance Score:** **Good:** Accounts fully approved by sub-county accountant **Satisfactory:** Some areas of accounting need improvement, but overall evaluation satisfactory **Not satisfactory:** Sub-county accountant checks & fails to approve annual accounts.
3. Planning		
3.1 Fisheries information collected at least 4 days per month	CAS forms	Too early to monitor on many lakes. Relevant in early 2004 for Lakes George & Edward. **Performance Score:** **Good:** CAS forms completed correctly on at least 4 days per month **Satisfactory:** CAS forms completed correctly on at least 4 days per month but some gaps explained by logistical problems. **Not satisfactory:** Little evidence of CAS forms being completed, or if completed then most incorrect and of little use.
3.2 Monthly fisheries information compiled & discussed by BMUC	BMU minutes of meetings	Note: Too early to monitor on many lakes in 2004. Relevant for Lake George. **Performance Score:** **Good:** Catch, effort and other data compiled and used in monthly management meetings.

		Satisfactory: CAS data compiled but used irregularly in BMUC meetings **Not satisfactory:** Little (less than quarterly) or no evidence of CAS information being used by BMUC.
3.3 Fisheries by-laws made	Sub-county council records	Check with Sub-county Councils and record how many fisheries bye-laws made and when. **Performance Score:** **Good:** More than 3 bye-laws approved to protect fisheries resources. **Satisfactory:** Bye-laws approved (3 or less) to protect fisheries resources. **Not satisfactory:** No bye-laws made.
3.4 Local fisheries management plan approved by BMU Assembly	BMU minutes of meetings	Check if a plan produced. If yes, take a copy. If yes, when was the plan approved by the Assembly? Need copy of the Assembly minutes. **Performance Score:** **Good:** Plan made and approved by BMU Assembly **Satisfactory:** Plan drafted by BMUC but not yet approved by Assembly **Not satisfactory:** No plan made.
3.5 Beach development plan approved by BMU Assembly	Beach development plan; BMU minutes of meetings	Check if a plan produced. If yes, take a copy. If yes, when was the plan approved by the Assembly? Take copy of the Assembly minutes. **Performance Score:** **Good:** Plan made and approved by BMU Assembly **Satisfactory**: Plan drafted by BMUC but not yet approved by Assembly **Not satisfactory:** No plan made.
3.6 Local government development plans include BMU priorities	Minutes of SC meetings; PDP	BMU priorities in PDP, if it exists? **Performance Score:** **Good:** All BMU priorities within PDP **Satisfactory:** Some BMU priorities within PDP **Not satisfactory:** No BMU priorities within PDP
3.7 BMU plans include lake wide management priorities	BMU plans	Not relevant for lakes with no management plan. For those that

		have such plans, compare these with BMU plan. **Performance Score:** **Good:** BMU plan includes all relevant lake wide management priorities **Satisfactory:** BMU plan includes some lake wide management priorities **Not satisfactory:** BMU plan includes no lake wide management priorities
4. Association with other BMUs for planning & management		
4.1 Regular meetings held with other BMUs	BMU minutes of meetings	Seek evidence and record number of meetings. Collect copy of minutes of meeting. **Performance Score:** **Good:** Regular meetings held with other BMUs **Satisfactory:** Irregular meetings held with other BMUs **Not satisfactory:** No meetings held with other BMUs
4.2 Areas of jurisdiction of BMUs agreed	BMU Operating Procedures endorsed by Local Government	Check if Operating Procedures clearly set out the geographical area of operation of the BMU. **Performance Score:** **Good:** Area of jurisdiction of BMU agreed, known by members and included in an approved bye-law **Satisfactory:** Area of jurisdiction of BMU agreed and known but not yet approved in a bye-law **Not satisfactory:** Area of jurisdiction of BMUs not agreed; uncertainty or dispute continues.
5. Implementation of management plan		
5.1 MCS patrols completed each month	MCS forms and reports	Record whether BMU patrols are undertaken by single BMU or within larger association. Check how long patrols have been taking place. How often they go out. Check records of patrol procedures and results? **Performance Score:** **Good:** MCS patrols completed in accordance with agreed Standard Operating Procedures and reported each month using standard reporting formats **Satisfactory:** MCS patrols completed and reported irregularly

		Not satisfactory: MCS patrols not undertaken
5.2 Prohibited fishing zones identified and enforced	Bye-laws; lake management plan; BMU minutes of meetings	Sub-county Council minutes **Performance Score:** **Good:** Prohibited Fishing Zones recognised in bye-law or ordinance and regularly patrolled **Satisfactory:** Prohibited Fishing Zones recognised in bye-law or ordinance but patrolled irregularly **Not satisfactory:** Prohibited Fishing Zones not established
5.3 Selection of licensees is transparent and fair	DFO reports to CAO; BMU minutes of meetings	Review records at District level and BMU minutes of meetings. **Performance Score:** **Good:** Records show who gets licences in accordance with agreed procedures containing poverty focus and gender sensitivity **Not satisfactory:** Unclear or no records, and/or many complaints about licensing procedure.
5.4 Visiting boats inspected, recorded & permission to land granted	Records of visiting boats	Check if BMU is keeping records. If yes, collect a copy. **Performance Score:** **Good:** Visiting boats inspected and recorded regularly. **Satisfactory:** Visiting boats inspected and recorded irregularly. **Not satisfactory:** No documented record of visiting boats
5.5 Life jackets obtained for all fishermen	BMU minutes of meetings	Check if there any life jackets within the BMU. Check if fishing boats use jerry cans or car inner tubes as alternative life saving devices. **Performance Score:** **Good:** Life jackets worn by all fishermen **Satisfactory:** Alternative flotation devices (jerry cans, inner tubes carried in most fishing boats **Not satisfactory:** No life jackets or alternative devices used
5.6 Number of public toilets established at landing site in accordance with local by-laws	By-laws; lake management plan; BMU minutes of meetings	Number of public toilets; their condition; how well are they used and maintained? **Performance Score:** **Good:** Target number of public toilets achieved **Satisfactory:** Some public toilets established but not yet reached target number **Not satisfactory:** No public toilets established

6. Sustainable funding		
6.1 Fish movement permits issued & 25% revenue given to BMU	Permit receipts; ledger book; BMU bank statements	Check if issue of FMP begun. If yes, check records of issues and income. Check if all money been remitted to the Sub-county and if BMU received back its 25%. **Performance Score:** **Good:** FMP issued, records kept, funds remitted and received. **Not satisfactory:** FMP issued but no records, or incomplete or unclear records of what happens to cash. Or, BMU records good but local government does not send back 25% of revenue.
6.2 Other fees collected in accordance with SI & Guidelines	Fee receipts; ledger book; BMU bank statements	Check what fees collected by the BMU. Check if these fees were approved by the BMU Assembly. Collect copy of minutes of BMU meeting as evidence. Check for complaints about fees and fee raising procedures. **Performance Score:** **Good:** Approved fees collected in accordance with SI & Guidelines, good receipting and records, no complaints **Not satisfactory:** Fees collected but poor or no reporting; complaints widespread and common.
6.3 Receipts given and recorded by BMU for all charges	Fee receipts; ledger book; BMU bank statements	Request evidence of receipts; review ledger book **Performance Score:** **Good:** Clear and accurate financial receipting & reporting **Not satisfactory:** Unclear or no receipting and reporting.
7. Impacts of co-management		
7.1 30% reduction per year in numbers of illegal fishing boats	MCS forms; BMU minutes of meetings	Check district records on illegal fishing and MCS forms for Lake Management organisations **Performance Score:** **Good:** Attained target of 30% reduction **Satisfactory:** Almost reached target i.e. 15% or more **Not satisfactory:** No progress made in reducing illegal boats
7.2 30% reduction per year in numbers of illegal fishing gears	MCS forms; BMU minutes of meetings	Check district records on illegal fishing and MCS forms for Lake Management organisations **Performance Score:** **Good:** Attained target of 30% reduction

		Satisfactory: Almost reached target i.e. 15% or more **Not satisfactory:** No progress made in reducing illegal gears
7.3 30% reduction per year in vehicle numbers trading illegal fish	MCS forms; local government reports	Check district records on illegal fishing and MCS forms for Lake Management organisations **Performance Score:** **Good:** Attained target of 30% reduction **Satisfactory:** Almost reached target i.e. 15% or more **Not satisfactory:** No progress made in reducing illegal trade
7.4 10% increase per year in catch per net per night of gill net of minimum legal mesh size for respective water body	CAS; BMU minutes of meetings	Check analyses of CAS by BMUs, DFO and Lake Management Organisations. **Performance Score:** **Good:** Attained target of 10% reduction **Satisfactory:** Almost reached target i.e. 5% or more **Not satisfactory:** No progress made in increasing catch rate
7.5 10% increase in fish catch (total for BMU) per year	CAS; BMU minutes of meetings	Check analyses of CAS by BMUs, DFO and Lake Management Organisations. **Performance Score:** **Good:** Attained target of 10% reduction **Satisfactory:** Almost reached target i.e. 5% or more **Not satisfactory:** No progress made in increasing annual catch
7.6 10% increase in income of fishers per year	CAS; BMU minutes of meetings	Check analyses of CAS by BMUs, DFO and Lake Management Organisations. **Performance Score:** **Good:** Attained target of 10% reduction **Satisfactory:** Almost reached target i.e. 5% or more **Not satisfactory:** No progress made in increasing annual income