

IUCN Eastern Africa Regional
&
Lake Victoria Fisheries

IUCN/LVFO Socio-economics of the Lake Victoria Fish

The International World Community Participation in Management on Lake

BMU Development on Lake Victoria

S. Heck, C. T. Kirema-Mukasa, B. Nyandat, J. P. Owino



Fisher



July 2004

NORAD



**IUCN Eastern Africa Regional Programme
&
Lake Victoria Fisheries Organization (LVFO)**

IUCN/LVFO Socio-economics of the Lake Victoria Fisheries Phase II

Report on:



**The International Workshop on
Community Participation in Fisheries
Management on Lake Victoria:
*BMU Development on Lake Victoria***

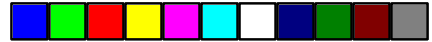
Imperial Hotel, Kisumu, Kenya, 7 – 10 October 2003

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ACRONYMS

BMUs	Beach Management Units
BVCs	Beach Village Committees
CBFM	Community Based Fisheries Management
CBNRM	Community Based Natural Resource Management
CBO	

MNRT	Ministry of Natural Resources and Tourism
MRALG	Ministry of Regional and Local Government
MSY	Maximum Sustainable Yield
NGOs	Non Governmental Organizations
NFMP	New Fisheries Management Policy
NORAD	Norwegian Agency for International Development
PDR	People's Democratic Republic
SOPs	Standard Operating Procedures
TAB	Technical Advisory Body
TAC	Total Allowable Catch
TAFIRI	Tanzania Fisheries Research Institute
TCCF	Tanga Coastal Consultative Forum
VEMC	Village Environmental Management Committee

1. BACKGROUND

Lake Victoria is home to Africa's largest freshwater fishery, shared by Kenya, Tanzania and Uganda. Over the last two decades, the export-oriented fishery for Nile perch (an introduced species) has transformed the scale and nature of the lake fisheries. The new fishery has generated livelihood benefits for over 120,000 fishers and their communities as well as substantial contributions to the national economies of the riparian states through export earnings valued at US\$ 600m annually. At the same time, new challenges have emerged for fisheries management, including a drastic increase in fishing effort, unprecedented levels of capital investment, improved mobility of fishers, growing concerns about quality

WORKSHOP OBJECTIVES

The purpose of the workshop was to review and analyse the status of BMU development on Lake Victoria in light of international experiences in co-management arrangements in the fisheries sector. Based on this, the workshop charted a way forward for strengthening and regional harmonisation of BMU operations on the lake. Specifically, the workshop achieved the following:

- i. Provided an overview of the status of BMU development and practical experience with co-management in Kenya, Tanzania and Uganda;
- ii. Elucidated technical aspects of community participation in fisheries management (focusing on information, legal and financial aspects) and assessed their relevance for Lake Victoria;
- iii. Reviewed co-management experiences in fisheries in other regions and identified lessons for Lake Victoria;
- iv. Identified strategies for the further development of BMUs on the lake, including linkages at regional level.

The workshop built on expertise from management, research and communities on Lake Victoria, complemented by experience and technical inputs from outside the region. Presentations were made on technical aspects of co-management in fisheries and on practical experiences with community participation on Lake Victoria as well as in other regions. Discussions further elucidated the application of this expertise to the present situation and future development of Lake Victoria fisheries.

Workshop participants included directors and staff of government departments and institutes, BMUs from around Lake Victoria, local government officers, researchers and civil society organisations active on the lake, as well as representatives from international institutions and programmes working on issues of co-management in fisheries in other parts of the world (see Appendix 23 for full list of participants).

The workshop was held on 7th – 10th October 2003 at Imperial Hotel, Kisumu, Kenya. On 8th October, participants visited Wichlum Fish Landing Site, Bondo District, Kenya.

2. OPENING SESSION

This section presents brief summaries of papers presented in the opening sessions of the workshop. The full papers for some of the presentations are attached as appendices.

2.1 WELCOMING REMARKS

By The Director of Fisheries, Kenya, Mrs. Nancy Gitonga

Mrs. Nancy Gitonga, The Director of Fisheries, Kenya, welcomed participants on behalf of the Kenyan Government and said that the single purpose for their gathering together was to deliberate on the advantages of community participation in fisheries management on Lake Victoria for improved utilization of fisheries resources. She noted that the Kenya Government has embraced this management strategy as the best option for managing the resources and has involved stakeholders in many of the fisheries water bodies with very pleasing results, especially in reversing declining stocks. Lake Victoria being a shared resource between the 3 countries, it is therefore important to harmonize our various resource management strategies, hence the workshop is very relevant.

2.2 WELCOMING REMARKS

By His Worship The Mayor, Mr. Otieno Karan

As leader of Kisumu City, the Mayor welcomed all the visitors to Kisumu City and stated that the organizers of the workshop had made a good decision on their choice of venue, which was not misplaced, as Kisumu is a rival city in the East African Region. He requested the workshop to address the issue of information flow, and noted that as new laws, regulations and/or requirements in fisheries management being put in place, mechanisms should equally be put in place to ensure that such information flows down to the fishers within the shortest possible time.

2.3 WELCOMING REMARKS

By The Provincial Commissioner Nyanza, Mr. Ndolo

Mr. Ndolo, The Provincial Commissioner Nyanza, welcomed all participants to Nyanza Province and noted the fish industry plays a key role in the province second only to tea. He further emphasized that community participation is the only solution in the management of any resource and that any management plan that ignores the community is likely to fail. He assured the participants that his office (Provincial Administration) will play a key role in assisting in the sustainable management of Lake Victoria.

2.4 WELCOMING REMARKS

By The Executive Secretary LVFO, Mr. Thomas Maembe

Mr. Thomas Maembe, The Executive Secretary LVFO, stated that Lake Victoria is a very important shared economic asset for the East Africa Community Partner

States i.e. Kenya, Tanzania and Uganda and urged the resource users to adhere to some of the latest decisions of the Council of Ministers, which include:

- i. Prohibition of use of beach seines, gillnets with mesh size less than 5 inches and other illegal fishing gears. This measure is meant to prevent the harvesting of immature fish.
- ii. Observing the slot size of 50 – 85 cm total length for Nile Perch.

The long-term result of implementing fully the adopted management measures

He concluded by saying that all stakeholders have to play their role to ensure the well being of the lake and its resources, thus the need to increase the scientific understanding of the living resources, the ecosystem, the impact of climate change, human population and settlement around the basin, industrialization, over-fishing; and other threats like pollution and water hyacinth. The close participation of fisher communities in the management of the lake resources needs to be understood at all levels of decision making and strengthened through empowerment and capacity building. And finally, fish do not recognize man-made boundaries and therefore wise management of fisheries requires the collaborative effort of all stakeholders.

2.5 WELCOMING REMARKS

By The Regional Representative IUCN, Dr Eldad Tukahirwa

Dr Eldad Tukahirwa, The Regional Representative of IUCN, (The World Conservation Union) welcomed all delegates both on his behalf and that of the organizing team especially the Hon. Minister and others. He took the opportunity to inform the delegates about IUCN whose goal is 'A just world that values and conserves nature'. He further noted that IUCN's core business is to promote the conservation and sustainable use of natural resources. IUCN is a unique membership organization, which includes, States, Government Agencies, and NGOs. IUCN's original approach to conservation was through the setting aside of conservation areas, something which was possible in the 1950s and 1960s due to less pressure on the land as well as on nature resources. But with increasing human pressure, the original paradigm of nature protection to the exclusion of key stakeholders was no longer practical, hence the need for a paradigm shift to embrace participation of major stakeholders including local communities. This is the approach IUCN is now promoting and the challenge still remaining is to devise ways and means of operationalising community participation at local level8 T.n still rai

perch project which was also funded by NORAD and started in 2001, has emphasized the role of community participation in fisheries management. He said that NORAD has noted with appreciation the close and very good working relations the IUCN Nile perch project has developed with LVFO, the Fisheries Departments and the Fisheries Research Institutes in the region in implementing phase II of the project.

2.7 WELCOMING REMARKS

By The Hon. M.P. Gwassi, Mr. Zaddock Syongoh


The Hon. M.P. for Gwassi, Mr. Zaddock Syongoh is the Chair of the Parliamentary Group on Environment and Agriculture and attended the workshop in this capacity, upon request by the Hon. Minister, Munyao. A part from this, Gwassi Constituency has the largest shoreline of Lake Victoria. Hon. Syongoh welcomed all the participants on behalf of the fishing community in Kenya and noted that fishermen are the key stakeholders in fisheries management. He further emphasized that indigenous fishing communities have enormous knowledge about Lake Victoria and its fisheries, which should be tapped by fisheries managers. The M.P. noted that if the infrastructure is improved, that is good roads, electricity, and sanitation, then the value of fish will be increased. He underscored the need for complementary economic activities for the fishers especially during the closed seasons and noted that the role of government is changing to that of facilitating fishers for improved resource use.

2.8 OPENING SPEECH

**By The Minister for Livestock and Fisheries Development, Kenya,
Hon. Joseph Munyao**

In his address, the Minister for Livestock and Fisheries Development, Kenya, the Hon. Joseph Munyao, emphasized the following:

The importance of the meeting bringing fishing community representatives and fisheries managers at the district, national and regional levels from the three riparian countries together for the first time to discuss and share experiences on issues related to community involvement in fisheries management; the importance of Lake Victoria as a: provider of fish for local and international consumption, source of water for domestic and industrial uses and irrigation, transportation link between the riparian countries and reservoir of globally important biodiversity.



The threats to this important ecosystem, include: excessive fishing efforts, use of destructive fishing gears, habitat degradation, insufficient enforcement and extension, poor infrastructure and high HIV/AIDS infection rates. Important steps have been made in managing this shared resource, especially the formation of LVFO.

He stated that although cross-border fishing and fish trade is an issue in all shared water bodies, its magnitude on Lake Victoria has sharply grown in recent years. As fishers try to maximize their catches and earnings to the extent of exploiting rich fishing grounds beyond their national boundaries and as they search for better prices across borders, levels of insecurity, illegality and violence on the lake have risen sharply. These impediments to the sustainable management of Lake Victoria's fisheries resources and ought to be addressed urgently.

He noted with appreciation, efforts by the Partner States to institute regional fisheries measures such as: using slot sizes of 50-85cm total length for Nile perch fishing; implementing processing and marketing controls; banning destructive fishing methods and gears; enacting laws to control the manufacture, importation and sale of undersized nets; prohibition of trawling on the lake and harmonization of the fish quality regulations in order to safeguard the access to European export markets.

He further noted with appreciation the projects that have been initiated in the Lake region such as the IUCN/LVFO Nile Perch Fishery Project funded by NORAD; the Implementation of the Lake Victoria Fisheries Management Plan Project funded by the European Union; LVEMP funded by the World Bank and the CFC/FAO/COMESA Fishery Project on value addition in fish processing.

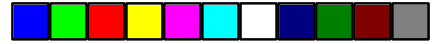
He was grateful that IUCN and LVFO had organized this workshop in response to the growing realization that fisher communities need to be more actively involved in fisheries management. He urged that the BMUs be given further support and guidance by specifying their roles, responsibilities, and operations on a firm legal foundation as well as further developing their technical and managerial skills to ensure that they fulfill their full potential as they are the right way forward for community participation in fisheries management on the lake.

He officially opened the workshop and wished the delegates fruitful deliberations.

3.

Co-management is multi-dimensional, that is, it addresses organisational, institutional, technical, financial and communication issues. Furthermore, it starts from what people have (their assets and strengths) rather than from what they do not have. More specifically, organisational capacity building focuses on strengthening or setting-up of user organizations, and includes training in simple planning methods and administrative procedures. Institutional capacity building focuses on the development of management plans and the review and adaptation of fishing rules and regulations. Communicative capacity building emphasises facilitation skills, joint learning and planning, developing a common language, but allowing for dynamism and flexibility.

Capacity building is done across 'communities' (gender, age, professions, etc.) and scales (from reservoirs to rivers and lakes, from local to national to regional and international levels. Scaling up co-management may give an opportunity to apply lessons learned locally at higher levels. It also may provide an opportunity to 'internalise externalities' (that is, reacting to impacts that may originate outside the immediate locality). It may provide an opportunity to create a stronger base



communication and capacity building. Care has to be given not to make co-management too bureaucratic, but to accept the existence of imperfect but dynamic forms. Co-management is a process, and not a straightjacket.

3.2 THE STATUS OF THE LAKE VICTORIA FISHERY **By W. Kudoja, Senior Scientist, LVFO**

William Kudoja, Senior Scientist, LVFO, gave a review of the history of the lake's fisheries, the scientific and management efforts that have been suggested over the years and the present status of the fishery. Lake Victoria touches the equator in its northern reaches, and is relatively shallow, reaching a maximum depth of about 80 m and an average depth of about 40 m. The Lake is shared among the three East African Countries, namely, Kenya (6%), Tanzania (51%) and Uganda (43%). Lake Victoria is endowed with fisheries resources that support riparian communities amounting to about 30 million people. The impact of the human activities in the lake basin is having its toll on the health of the lake. Illegal fishing practices, too much fishing effort and invasive weeds challenge sustainability of the fishery is becoming unsustainable. The present fisheries of Lake Victoria is now dominated by only three species namely, *Rastrineobola argentea* (mukene, omena, dagaa), Nile tilapia (*Oreochromis niloticus*) and Nile perch (mputa, sangara, chengu, mkombozi). The Nile perch is heavily exploited due to the export demand. Its over-exploitation is being manifested in the following: decreased size at first maturity, the presence of more males than females and high mortality rates indicating that the fishery is stressed. The indicative maximum sustainable yield (MSY) of the Nile perch stocks in 2001 stood at 220,000 metric tons, whereas the factories were processing fish close to that figure. Management measures have been put in place including slot size of 50-85cm for Nile Perch.



3.3 INSTITUTIONAL MECHANISMS FOR MANAGEMENT OF THE FISHERIES RESOURCES OF LAKE VICTORIA **By R. Ogutu-Ohwayo, Deputy Executive Secretary of the Lake Victoria Fisheries Organisation**

Richard Ogutu-Ohwayo, Deputy Executive Secretary, LVFO, presented an overview and analysis of the institutional mechanisms for fisheries management on the lake. Lake Victoria covers a large area of 68,800km² and has a catchment of 194,200 km², which spreads to Rwanda and Burundi. Lake Victoria is highly productive with about 500,000 m tonnes of fish valued at more than US\$ 600 m annually. The development objectives of the fisheries sector include poverty eradication, resource sustainability and environmental health. The fisheries of

Lake Victoria are faced with a number of threats and challenges; among them the decline in fish catches, deterioration of fish habitat, excessive fishing effort, use of destructive fishing gears and methods, capture of immature fish, high post-harvest fish losses, poor dissemination of management information, outdated laws and regulations, inadequate enforcement of laws and regulations, limited involvement of fishers in management, and conflicts over resource access, especially along borders.

In order to meet these challenges, fisheries management needs effective institutions and participatory processes, appropriate policies and laws, and adequate infrastructure, communication and human resources capacity. At the regional level the lake fisheries is managed by the intergovernmental Lake Victoria Organization (LVFO), established by Kenya, Tanzania and Uganda in 1994. The Organization comprises the Fisheries Departments and Fisheries Research Institutions of the three Partner States and is governed by the Council of Ministers. At national level, each country has its own structure of fisheries management institutions reaching from central government to local government level. The interface between the government management organs and the fisher communities is still not well defined. It is here where co-management arrangements are currently being developed. Roles of BMUs and other community organizations could include representation of community interests and concerns at higher level forums, mobilization and education of fishers, and

4.




initially be facilitated through government funds and/or programmes. BMUs involvement in information gathering, analyses, sharing and data storage requires frequent monitoring and supervision from technical personnel. BMUs must be provided with a simple harmonised format to be used in information gathering, analysis, storage and sharing and encouraged to hold regular seminars/workshops at beaches for information sharing and dissemination.


4.2 LEGAL ASPECTS OF CO-MANAGEMENT IN FISHERIES

By H. Teigene, B. Kuemlangan, FAO Development Law Service, Rome, Italy

Henning Teigene explained that effective implementation of co-management systems depends on supportive legislative framework. Co-management systems are successful in jurisdictions like Philippines and Japan where there exists a favourable legal environment. In respect of traditional community-based marine resource management systems, the functional systems recorded exist in jurisdictions that accord them legal recognition and are protected by government. This is important because it can pre-empt and avoid legal challenges, which could have adverse consequences.



A principal consideration in the context of ascertaining the legal basis for co-management is that the fundamental law, (e.g. the constitution or organic law) must allow the establishment of participatory management. It could be effected through a decentralisation framework, only if allowed by or is consistent with the fundamental law.



The legislative framework for co-management must ensure security and enforceability of a right and provide for site-specific delegation of some management responsibility, either on an indefinite basis or for a finite period. The framework should set out rules by which local institutions can interact with an outsider. That is, co-management must naturally exist inside the larger legal environment. Linked with sovereign authority, which is the state, it thus needs a legal status that outsiders can recognise and interact with.

Co-management legislation should provide protection for local institutions from trespassing and the criminal behaviour of outsiders as well as against the abuse of local power over resources. It gives legal recognition to community based rules and commands conformity by the public to those rules and at the same time defines the limits of state power i.e. the extent to which the state will respect local autonomy and where and under what conditions it will retain the power to intervene.

Co-management legislation frameworks should be flexible, i.e. enabling the designated local resource user and/or managers to exercise choices that reflect their unique needs, conditions and aspirations. The framework must integrate co-management into the general fisheries management. This sets out, *inter alia*, the clear status, relationship and role of co-management in the overall policy framework and decision making process, management planning, decision rules such as control of total fishing effort through total allowable catch (TAC) at regional, national and local levels including the regulatory powers and structure of the management authority, as well as local monitoring control and surveillance (MCS) powers in the context of national and regional MCS programmes.

4.3 TRANSACTION COSTS AND RESOURCE RENT OF FISHERIES CO-MANAGEMENT AT THE OXBOW LAKES (BAOR) IN BANGLADESH

By K. Murshed-E-Jahan, WorldFish Centre, Dhaka, Bangladesh

Khordker Murshed-E-Jahan of the WorldFish Centre noted that Bangladesh possesses a wide range of water bodies such as marshes, reservoirs, lakes (including ox-bow lakes), natural depressions, rivers and estuaries that offer an extensive inland fishery which occupy an area of nearly 4.5 million ha (BBS, 2002). Fisheries account for about 3.27 percent of country's GDP and contribute 60 percent of the nation's animal protein intake. It provides full time employment to 1.2 million people and part time employment for some 11 million people. Inland fisheries of Bangladesh rank fourth in the world after China, India and the former Soviet Union.

There are two alternative fishing policies being practiced in Bangladesh to manage the inland fisheries i.e. Leasing and Licensing. The management systems developed based on the leasing policy are Private Management, Cooperative Management and Government Management. Licensing policy is implemented under the New Fisheries Management Policy (NFMP), which was introduced in 1986 and the management systems developed under this system are Co-management and Centralized Management.

Transaction costs are defined as the costs involved in collecting the information, coordinating among the various agents/stakeholders and enforcing and monitoring the rules and regulations required for developing and running a governance institution. Transaction cost in fisheries co-management can be broadly categorized into three major costs items i.e. information costs, collective fisheries decision-making costs and collective operational costs. On the other hand resource rent is defined as the excess of revenue over the opportunity cost

of labor and capital. Fishery resources are capable of generating rents or pure profits if properly managed. A positive pure economic profit or resource rent over the years reflects the long-term viability of the management system.

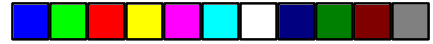
The economic benefit or resource rent from the fishery at a given time it can be expressed as:

$$\Pi_t = [p_t h_t - (VC_t + OCE_t + FC_t)]$$

Where,
 $p_t h_t$ = total value of landed fish at time t (P = price and h quantity of landed fish)
 VC_t = variable cost at time t
 OCE_t = opportunity cost of effort t
 FC_t = fixed cost at time t

In Bangladesh, a comparison study was carried out over a period of time on the transaction costs and resource rent involved in fisheries management in Oxbow lakes between a centralised fisheries management system and a co-management system.

The findings indicate the following: that co-management systems shift the costs of managing the fisheries resources from the central government to fishermen groups; that at the initial stage a co-management approach takes higher costs and more time, but once the community becomes self sufficient this costs declines; the running costs or recurrent costs for managing the resources is lower and resource rent over transaction costs is higher in the co-management system, providing support for the long-term sustainability of fisheries co-management systems; that monitoring and enforcement costs are the major transaction costs of managing fisheries at oxbow lakes. As these activities were undertaken by fishers, the transaction costs declined over time as community acceptance of rules and regulations increased the legitimacy of the rules and regulations governing the common property resource. From a policy perspective, the key advantage of stakeholders' participation in the decision-making process is that it motivated the fishers to adhere loyally to the regulations.



4.4 COMMUNITY PARTICIPATION IN THE TANGA COASTAL ZONE CONSERVATION AND DEVELOPMENT PROGRAMME, TANZANIA

By E. Verheij, R. Haji, K. Mvugaro and M. Dachi

Summary

Eric Verheij, the Technical Advisor to the IUCN Tanga Coastal Zone Conservation and Development Programme, Tanzania explained that the programme started in 1994 as a collaborative fisheries management project. The specific objectives are the Conservation and sustainable use of the coastal resources; capacity building; establishment of institutional arrangements; environmental education and creation of awareness; and promotion of alternative income generating activities.

Issues

- i. Maintaining the gender balance of different committees,
- ii. Cases of increased illegalities in resource exploitation by unscrupulous resource users making enforcement very difficult,
- iii. Lack of successful prosecution of those involved in the illegalities due to corruption and ignorance,
- iv. Lack of financial sustainability,
- v. Lack of legal power for the community conservation committees which are often cross ward/district,
- vi. Lack of cross-border management arrangement with Kenya.

Recommendations

- i. Establishment of a participatory process to encourage compliance and reduced costs in monitoring, enforcement and management of closed areas to enhance conservation and replenishment of the coastal resources;
- ii. The participatory process gives communities first hand information on the impacts of their management interventions;
- iii. Conservation and management of coastal marine resources by local communities is an alternative for the traditional park/reserve concepts (World Park Conference, Johannesburg, September, 2003);
- iv. Regular supervision by a higher competent authority of the monitoring exercise by the communities is vital;
- v. Proper legal framework and institutional arrangements must be in place;
- vi. Need for sustainable financial mechanisms for co-management including compensating communities loss of income and time while participating in resource management;

- vii. Develop and formalise cross-border management regimes among the parties sharing the resource;
- viii. As a last resort it may be necessary to incorporate armed personnel for enforcement when dealing with unscrupulous resource users;
- ix. Create awareness among the law enforcers and the judiciary.

4.5 FISHERIES CO-MANAGEMENT IN MALAWI: IMPLEMENTATION ARRANGEMENTS ON LAKES MALOMBE, CHIUTA AND CHILWA

By F. Njaya and S. Donda, Department of Fisheries, Malawi

Summary

The presentation by Friday Njaya and Steve Donda from the Department of Fisheries, Malawi, focused on the above 3 Lakes where co-management has been initiated to address the decline of fish stocks, failure of centralised management systems and restoration of Lake Chilwa.

Issues

- i. Policy, legal and institutional establishment for fisheries co-management;
- ii. Sustainable funding mechanism;
- iii. Power struggle between institutions (BVCs and local leaders);
- iv. Resource access rights, revenue sharing and exit strategies not well articulated;
- v. Capacity building for resource users;
- vi. Convergent objectives between communities and government with the former playing an active role;
- vii. Clear definition of roles and responsibilities between government and community institutions in co-management arrangements.

Recommendations

- i. Proper legal framework and institutional arrangements must be in place to implement co-management arrangements and reduce conflicts of interest;
- ii. Need for capacity building for key stakeholders in monitoring, conflict resolution, business management and technical skills among others;
- iii. Establishment of adequate communication channels among stakeholders is vital for co-management;
- iv. Recognition of local leaders and embedding the BVCs in the local institutional structure is necessary for sustainability.

5. STA

conflicts across borders as well as internally, and the growing costs of the HIV/AIDS pandemic. In addition, fishers have been experiencing declining catches of Nile perch and fluctuating prices for their catch.

In conclusion, fishers are becoming increasingly involved in fisheries management in Kenya. Their knowledge of fisheries issues such as breeding areas and seasons are being incorporated into regulations, giving communities a

The BMUs recommended that a public trust fund should be set up to address the financial constraints of fishers. BMUs should be supported through training and MCS equipment. An information network should link BMUs with each other. With respect to the legal framework, Government should complete the review of Fisheries Act Cap 378 to incorporate the operations of BMUs. Finally, BMUs urged the governments to find a lasting solution to cross-border conflicts on Lake Victoria.

5.2 TANZANIA

**By M. Medard, Tanzania Fisheries Research Institute and
E. Ntemi, BMU Representative**

Modesta Medard, Tanzania Fisheries Research Institute, gave an account of the development of BMUs in Tanzania. Starting in 1998-2000, the concept of co-management was introduced into fisheries management in Tanzania, leading to an arrangement where resource users and the government share the responsibility in the management of fisheries resources. The roles of BMUs and other community stakeholders as spelt out in the Fisheries Act No. 6 of 1970 covers formulation of village government by-laws, ensuring beach sanitation and hygiene, and educating fishers on the negative impact of destructive fishing. Government retains important functions of fisheries management. At local level, government authorities enforce the Fisheries Act, approve by-laws, provide extension services, and collect revenue. Central Government in turn acts as the custodian of the Fisheries Act, giving guidelines on wise-use of resources.

In 1998-2000, 511 Beach Management Units were established in Tanzania, 226 in Mwanza Region, 123 in Mara, and 122 in Kagera. Government has since then conducted a series of studies and reviews of the performance of BMUs, culminating in a National Workshop in May 2003 where a Concept Paper on the strategic way forward for BMUs was discussed. Among the initiatives for improving BMU performance are campaigns to educate District and City Councils on the advantages of involving BMUs in revenue tenders and other management functions. BMUs internal issues to be addressed include: lack of constitutions and by-laws, lack of remuneration of officials, conflicts of interest among local stakeholders, and lack of organisational and technical skills among leaders. The work of BMUs are further hampered by lack of patrolling and communication equipment, difficulties in combining law enforcement and community development roles, difficult coordination with the police force and courts of law, and the continued migration of fishers.



An estimated 65% of BMUs in Tanzania are active today. Their achievements are varied and include the following: holding revenue collection tenders, managing Savings and Credit Funds and Cooperative Societies, investments in community infrastructure (sanitation, schools), involvement in joint patrols with government agents and other MCS activities against illegal fishing, being entry points for training support to communities, involvement in local data collection and research, and creating employment. BMUs have been able to generate funds through a variety of ways such as landing fees, tenders, micro-finance schemes, user fees for BMU facilities, and fines from offenders. In addition, the Fisheries Division, through its retention scheme, is allocating funds to well-performing BMUs in the lake zone.

In conclusion, BMUs in Tanzania have become important institutions that need to be legally recognised and trained so that they can improve their performance and efficiency in their day-to-day activities. A close collaboration with government institutions at local and national level is necessary for attaining a sustainable co-managerial arrangement. As next steps in the further development of BMUs in Tanzania, operational guidelines are being developed, the incorporation of BMUs into the new Fisheries Act is in progress, and the drafting of fisheries related by-laws at village level is being supported. Further research is being carried out into options for financial sustainability of BMUs.

The BMU secretary of Kayenze, Tanzania, Emmanuel Ntemi, spoke about the experiences of the Kayenze BMU, highlighting their activities, achievements and challenges. Kayenze is one of the big landing beaches close to Mwanza, with nearly 2000 Nile perch fishers. Starting in 2000, the BMU began to operate as a committee under the village government system. They are involved in managing the fish landing station, collecting revenue on behalf of Magu Town Council, and enforcing the Fisheries Act and local bylaws for the protection of fisheries resources. On the latter issue, the BMU has so far impounded over 600 illegal nets at Kayenze. Together with the village authorities, the BMU monitors the movement of migrant fishers and their vessels, and they are also engaged in collecting data on fish catches. Theft and piracy are common problems that the BMU has to address; in 2000, for instance, items worth over US\$ 20,000 were stolen at Kayenze.

One of the remarkable achievements of the Kayenze BMU is the award of the revenue collection for the third consecutive time. They collect an amount of 900 per month, the profit from which they use in several ways.

The Kayenze BMU has contributed in the local development by constructing the classrooms and repairing of teachers' houses. The BMU's Savings and Credit Fund has disbursed loans to 65 villagers, many of whom are women, and more recently, they also started a Savings and Credit Society with 25 members. The BMU employs 14 youth at Kayenze. Maintenance and operation of the fish landing jetty is funded by fees from fishers and traders, as well as by BMU funds from revenue collection.


The Kayenze BMU recommends that Government continue to support them through training in organisational skills and education of community members, and through provision of communication equipment. They further suggest that border areas should be clearly marked and patrolled to reduce insecurity and illegality. Finally, BMUs should receive guidance and build up their business skills in order to diversify their revenue options.

5.3 UGANDA

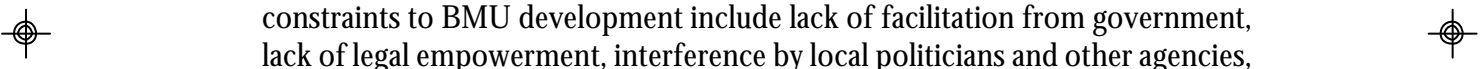
**By J. Ikwaput, Uganda Fisheries Resources Department,
I. Ebong, Uganda Fisheries Resources Department,
E. Lwanga, ILM Representative and
D. Luyinda, BMU Representative**

Joyce Ikwaput of Uganda Fisheries Resources Department made a presentation entitled *Status of the Beach Management Units Development in Uganda*. Lake Victoria contributes over 50% of the total annual fish catch in Uganda. The purpose of fisheries management is to ensure conservation, protection, proper use, economic efficiency and equitable distribution of the fisheries resources both for the present and future generations through sustainable utilization. Fisheries management in Uganda started in 1914 breaking down the traditional management regime based

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and districts resulting in poor monitoring and enforcement and increased fisheries malpractices. The catching of fish using pesticides between 1998-1999 led Government to ban fishing on Lake Victoria and the export of fish to the EU markets. Task Forces were formed at the beaches to get rid of use of fish poisons, and most remained operational after successful completion of the task. The Uganda National Fisheries Policy outlines the current fisheries roles and mandates specifying the roles of the Centre; the local governments (districts) and the local communities. The Communities are expected to take a leading role in husbanding their resources especially in near shore water. They are also expected to support local governments in day-to-day safeguarding of their natural assets and livelihood strategies. The key roles of the communities include: support local governments in the implementation of national laws and policies; formulate and enforce community bye-laws at the local level; monitor fishing activities within their localities; identify community priorities and plan for improvement; and collect fisheries information for planning purposes



The Government has formed Beach Management Units (BMUs) to serve as community fisheries management institutions replacing the former management regimes such as the Landing Management Committees (LMC), the “Gabunga” (Head fisherman responsible for management) and the Task Forces. The major constraints to BMU development include lack of facilitation from government, lack of legal empowerment, interference by local politicians and other agencies, the lack of definition in the composition of the BMUs, and the “open access” policy, which is not conducive for co-management. To improve the operations of BMUs, the Fisheries Department has come up with the Statutory Instrument, Fish (Beach Management) Rules 2003 No. 35 gazetted on 11th July 2003. The introduction of co-management and BMUs has contributed to improvement in data collection; reduction of illegal gears; improved sanitation and fish handling, attitude towards the fishery, mobilization of fishers for fishing vessel/fishermen registration and security of fishers and fishing gears.

David Luyinda, a BMU Member from Uganda presented the experiences of the BMUs in his country. Before the on-set of centralised fisheries management in the 1950s, the management of fisheries was regulated by cultural practices consisting mostly of taboos and had a lot of strength in management of the lake. The first fisheries institutions were that of the Gabunga (head fisherman), basically a hereditary one-man institution from the family of the landlord where the landing was located. Some were appointed by the Kabaka’s government as chiefs to oversee the fisheries activities. *Gabungas* worked hand in hand with fisheries staff (fish guards) and they used to consult fishers. The role of the *Gabunga* was to solve fishermen’s problems. All landings had *Gabunga*. In 1999,


Monday Lwanga and Geoffrey Ebong made a presentation on the beach management units and integrated lake management (ILM) on Lakes George and



model stipulated in the BMU Statutory Instrument offers options for sustainable funding of BMUs that may be considered by Tanzania and Kenya. The new decentralized fisheries licensing procedures (application and vetting) established on Lakes George and Edward in Uganda offer a potential model for Lake Victoria

6. FIELD VISIT TO WICHLUM FISH LANDING BEACH, BONDO DISTRICT, KENYA

On the second day of the workshop, participants visited Wichlum Fish Landing Beach in Bondo District. They toured the landing site, markets and offices of the Wichlum BMU and Co-operative Society where they held discussions with fishers, traders, and community leaders with a view to learning about economic activities at the landing site, strengths and challenges facing the BMU and the Co-operative Society and the opportunities for these institutions to participate in fisheries management.



Dr Richard Abila of KMFRI, Kisumu summarized the findings from this field exercise for the workshop plenary, drawing on observations and comments submitted by participants. The main economic activities observed at Wichlum were fish landing, marketing and processing, but also other trading, net mending, and transportation. The Co-operative Society was well organized, had assets (such as boats, outboard engine, office building), and operates a saving scheme that has attracted members. The BMU has a functioning administrative structure, with clearly defined roles and division of duties, and strategic facilities for carrying out its operations. It draws support from its members. The BMU, however, was facing a number of challenges such as poor infrastructure, high illiteracy among members, impacts of HIV/AIDS, lack of banking facilities, gender imbalance and fisheries management problems.

Finally, most participants suggested that, based on the Wichlum system, community institutions had high potential to take up various roles of fisheries management such as implementing fisheries regulations, surveillance, networking with others for better understanding and developing landing sites.

7. GROUP DISCUSSIONS OF OPERATIONAL ASPECTS OF BEACH MANAGEMENT UNITS

Three groups were formed to discuss operational aspects of co-management i.e. information, legal issues and finance (transaction costs and resource rent) in relation to the BMU's role in Lake Victoria.

Legal Aspects:

Group 1 discussed and made practical recommendations on the legal requirements of BMUs at different levels for them to fulfil their mandate and to operate effectively.

Levels for legal requirements:

- i. International - Obligations, conventions, treaties, protocols,
- ii. Regional - Policy approval,
- iii. National – Constitution, policy, legislation (Acts),
- iv. Local government - Ordinances,
- v. Community / Beach - by-laws.

Practical recommendations:

- i. Standardized operational guidelines (translated in local languages),
- ii. Establishment of relevant legislation at different levels,
- iii. Establishment of BMU associations from lower to higher levels,
- iv. Paralegal training (capacity building) of BMUs.

Mandate of BMUs:

- i. Identification and recommendation of fishers for licensing,
- ii. Maintaining the environment/sanitation/hygiene,
- iii. Propose and develop management by-laws, rules and/or regulations,
- iv. Sensitise communities on fisheries issues,
- v. Community policing to protect life, property and resource,
- vi. Conflict resolutions at local level amongst fishers,
- vii. MCS at local level,
- viii. Planning and decision making on fisheries management,
- ix. Revenue identification, collection, utilisation and management.

Financial Aspects:

Group 2 discussed and made recommendations on the practical options for financing BMU operations in short, medium and long term.

Strategies for implementation of these financial options:

- i. Developing by-laws,
- ii. Awareness raising,
- iii. Formation of committees for specific projects,
- iv. Capacity building,
- v. Improve hygiene handling and value addition to fish and fish products.

Recommendations:

- i. Clear roles & responsibility for BMUs & Government,
- ii. Harmony between local authorities and BMUs,
- iii.

Catch Data:

- i. Number/Length/weight by species,
- ii. Fishing boats: type of propulsion, gears and type, length, crew size, etc,
- iii. Fishing methods used, fishing time, marketing,
- iv. Price per kg per species, trucks/collector boats capacity and preservation methods, cost of inputs – capital and operational, fish markets and their distances, marketing facilities.

Revenue:

Licensing: value, responsible person, validity, etc, movement permits, levies, fines.

Socio-economics:

Number of people by sex, status, age, etc, number of different enterprises, number of migrants per given period of time, number of boat builders and number of yards etc.

Monitoring, Control and Surveillance:

- i.

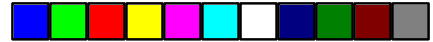


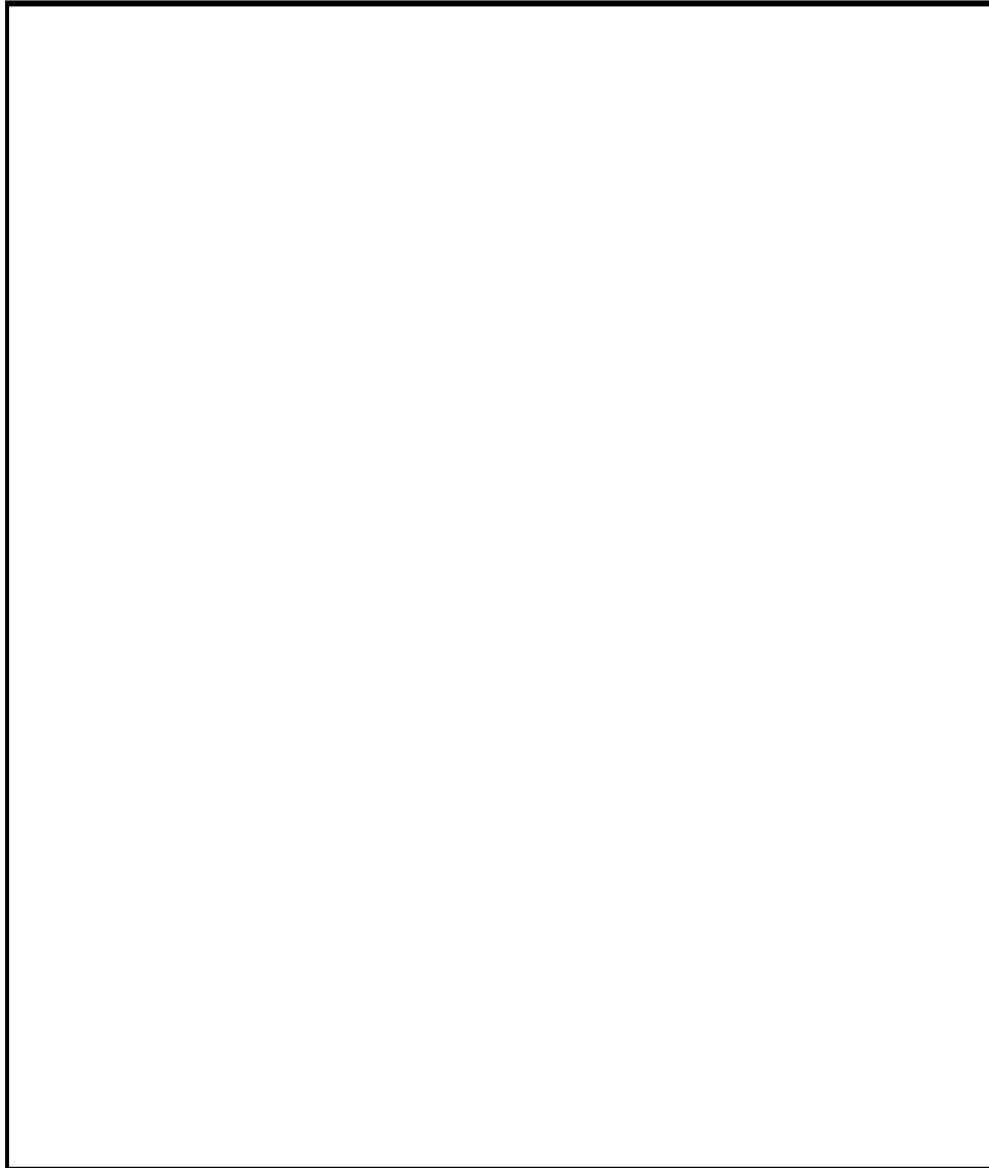
Table 1: Recommendations by group 2 on the practical options for financing BMUs operations

Practical options for financing BMUs	Short term	Medium term	Long term
Fisheries Dept (Trust) Fund from the Fish Revenue	x	x	x
Fines and Penalties	x		
Parking Charges from Lorries and Cars	x	x	x
Landing Fees per Boat eg: 1 fish or 1 Kg per Boat.	x	x	x
Fish Movement Permit 25% of tax goes to BMUs eg in Uganda			x
BMU reg. fees renewable eg: subscriptions yearly	x	x	x
Environmental Fees			x
BMUs Tendering	x		
Loans from Micro Finance Institutions			x
BMUs having Fixed Deposit Accounts earning Interest.			x
Fundraising eg: Harambee, and Charity walks	x		
Construction of storage facilities for rental eg: <i>Dagaa/ Omena</i>			x
Nursery Trees selling			x
Forming Cooperatives and exporting fish		x	
Explore opportunities for getting other products out of Nile Perch		x	x
Setting up quota systems,			x
Selling fish to the factories directly,			x
Alternative projects, eg aquaculture		x	
Savings and credits institutions			x
Fisheries Dept Fund from the Fish Revenue	x	x	x
Landing Fees per Boat eg: 1 fish or 1 Kg per Boat.	x	x	x
Fish Movement Permit 25% of tax goes to BMUs eg in Uganda			x

8. WORKSHOP RECOMMENDATIONS

Organizing fundraising events;
by-laws to be put in place

LEGAL ASPECTS		
10. Develop operational guidelines for BMUs	urgent, medium term	Communities to participate in the development of guidelines; Fisheries Departments to provide guidance and facilitation
11. Expedite the development of necessary legal instruments	long term	Building awareness among BMUs on legal matters; expedition of the acts through Parliaments (awareness-raising)
12. Establish BMU associations from local to regional level	urgent	Forums developed at the national and regional levels, mobilization of BMUs and other associations
13. Build BMU capacity to deal with legal matters	urgent	Training of BMUs in legal matters
14. Clarify the mandate of BMUs	urgent	National governments to clarify roles and mandates of BMUs
15. BMUs to participate in decisions about licensing of fishers and registration of vessels and gears in their areas	urgent, medium term, long term	Government and NGOs to facilitate training on licensing and registration requirements; roles of BMUs and government in licensing and registration to be clarified; inspection syt Bw (Develop T 1190344 Tc 0.3 0.24dTD 0.021umn



9. CLOSING SESSION

9.1 CLOSING REMARKS


By Dr Kelly West, IUCN Representative

Kelly West, Coordinator of Wetlands and Water Resources, IUCN, expressed great pleasure in being given the opportunity to address the participants and mentioned other fresh water programmes being undertaken by IUCN in addition to Lake Victoria, such as Lake Tanganyika, the Rufiji River Basin, Lake Naivasha, the Pangani River Basin, Uganda's wetlands and other freshwater systems in

Eastern Africa. In these projects, IUCN aims to bring together partners and work towards the sustainable management, wise-use and conservation of ecosystems.

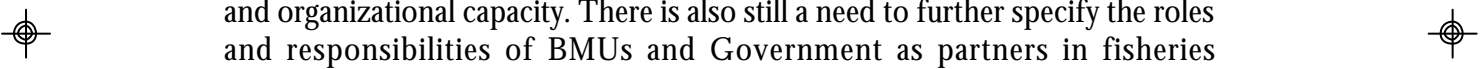
She noted that the challenges facing Lake Victoria, such as widespread poverty, continued use of unsustainable fishing practices and cross-border conflict are not only confined to Lake Victoria but affect many other ecosystems as well. From IUCN's experiences in Eastern Africa and indeed around the world it is natural and normal for different users of a resource to have different objectives and ideas about how the resource should be used or not used. She further stated that such conflicts over natural resource use are found all over the world, but the important thing is how such conflicts are handled.

For Lake Victoria, she noted that the challenge is determining how to integrate community participation in national and basin-level management processes. She



international experts he noted that we have learnt that co-management is mainly about creating opportunities for communities to participate in decision making in a transparent and responsible manner. In order to safe guard rights and enforce responsibilities at all levels, co-management must be supported by a sound legal framework that is in line with the primary laws of the land. Building up community participation might be rather expensive in the beginning, but benefits will inevitably accrue over the years that far exceed the cost-benefit balance of more centralized management systems.

He further noted that the particular strength of the workshop was the active participation of such a large number of fishers from Kenya, Tanzania and Uganda and that the process of establishing and developing BMUs in the 3 countries is at various stages and that this will make a valuable contribution towards the management of the lake fisheries and the welfare of the fishers. BMUs can play effective roles such as helping to: combat the use of illegal fishing gears, improve security at landing sites and on the water, monitor the resource, and mobilize and sensitize the fisher communities and invest in community services beyond the fisheries sector.



He noted that BMUs require external support to build up their skills, knowledge and organizational capacity. There is also still a need to further specify the roles and responsibilities of BMUs and Government as partners in fisheries management. He concluded by saying that BMUs have the best chance for success if they are well integrated into the social fabric of communities and maintain good relations with other local organizations and local government authorities and therefore the recommendations and action plans developed mark a significant progress in the management of the Lake's Fisheries. He then declared the workshop officially closed.

9.3 VOTE OF THANKS

By Ms. Justin Jovita, BMU Representative from Tanzania

On behalf of the BMUs, Justin Jovita, a BMU representative from Tanzania, thanked the organizers of the workshop for inviting the BMUs from Kenya, Tanzania and Uganda to participate in this important workshop together with the Fisheries managers and noted that BMUs have promised to implement what they had learnt for the benefit of the fisher communities of East Africa and the world at large. They hoped that this was the beginning of bringing BMU's together in East Africa especially in Lake Victoria.

APPENDICES

APPENDIX 1: WELCOMING REMARK **By The Director of Fisheries, Kenya, Mrs. N. Gitonga**

The Minister of Livestock and Fisheries Development Hon. Joseph Munyao,

The Member of Parliament for Gwasi, Hon. Zaddock Syongo,

Provincial Commissioner, Bwana Ndolo,

The Executive Secretary LVFO, Mr. Thomas Maembe,

His Worship The Mayor of Kisumu, Mr Otieno Karan,

Regional Representative IUCN, Dr Eldad Tukahirwa,

Representative of NORAD, Dr. Eirik Jansen,

Representatives of International Organizations,

Valued Stakeholders,

Distinguished participants,

Ladies and gentlemen:

I take this early opportunity on behalf of the Kenyan Government to welcome you all to Kisumu. Please feel at home for you are among your brothers and sisters. We will strive to make your stay as comfortable and as memorable as possible.

Mr. Minister Sir, before you, are participants from various parts of the world, majority being East Africans. The participant's single purpose for gathering here today is to deliberate on the advantages of community participation in fisheries management for improved utilisation of fisheries resource on Lake Victoria. Kenya as you are aware has embraced this management strategy as the best option for manning our resources. We have no doubt now, after trying it that it is the only way.

Kenya has involved stakeholders in many of her fisheries water bodies with very pleasing results, especially in reversing the declining stocks. It is for this reason and more that this meeting is very significant to us in Kenya, especially that we are addressing the management of a shared resource -Lake Victoria.

Mr. Minister, allow me to inform participants that Kenya is enjoying a new era with great promise for development. It is delightful that within five months of office of the new government, the fisheries potential was realised and in order to exploit this potential the government saw it fit to have a Ministry of Livestock and Fisheries Development. I do believe this positive step will expedite fisheries development in Kenya.

Once again I welcome you to Kenya.

Thank you

APPENDIX 2: WELCOMING REMARKS

By The Executive Secretary, LVFO, T. Maembe

Madam Chairperson,

Hon. Minister,

The Provincial Commissioner, Nyanza Province,

Chairman and Members of the Executive Committee, LVFO,

His Worship The Mayor, Kisumu Municipality,

Representatives of Development Partners,

Distinguished Invited Guests/Participants,

Ladies and Gentlemen,

Allow me to convey to you warm greetings from the Lake Victoria Fisheries Organization Secretariat and also welcome you all to this Workshop on Community participation in fisheries Management. I thank you Honourable Minister and distinguished participants for allocating time out of your very busy schedule to travel and attend the Workshop. I most sincerely thank the Norwegian Development Agency (NORAD) for providing funding to the Nile Perch Fisheries Project under which this workshop is being supported. I appreciate the commitment of IUCN – The World Conservation Union, the executive agency for the Nile Perch Project for the close collaborative partnership in implementing the project and for the focus of the project on community participation in fisheries management and problems associated with crossborder fishing and fish trade around the common borders of the riparian states.

Madam Chairperson and Hon. Minister, Lake Victoria is a very important shared economic asset for the East Africa Community Partner States namely, Kenya, Tanzania and Uganda. Historically collaboration in the field of fisheries management for Lake Victoria goes back to 1928 when it was recommended that a collaborative lake-wide authority be established to regulate fisheries management measures and the collection of fisheries statistics lake-wide. The recommendation led to the establishment of the East African Freshwater Fisheries Organisation (EAFFRO) in 1947. It became an institution of the old East African Community under which its activities were intensified but crumbled with the collapse of the E.A. Community in 1997. However, regional collaboration to develop and manage the fisheries of Lake Victoria continued under a Sub-committee of the FAO Committee for the Inland Fisheries of Africa (CIFA), which was established in 1980. The CIFA Sub-committee for Lake Victoria continued to function until 1994 when the Convention for the establishment of the Lake Victoria Fisheries Organization was adopted by the three EAC Partner States in this same hotel.

Madam Chairperson, the formation of the Organization whose main mandate is to foster cooperation among the countries, sharing the lake in order to harmonize national measures for the sustainable utilisation of the living resources and to develop and adopt conservation measures is a clear testimony of the intact interest and value the riparian states attach to the well being of the lake and its resources. Some of the other functions of the Organization include:

- i. Providing a forum like this Workshop for discussing the problems affecting the well being of the lake and maintaining a strong liaison with all the stakeholders.
- ii. Providing for conducting of research whose results will form the basis for sound decisions regarding the management of the lake living resources, the ecosystem and environment.

- iii. Coordinating building of the capacity of existing institutions, training and extension service activities.
- iv. Serving as a clearing-house and a data bank for information on fisheries and promoting the

Madam Chairperson, while a lot appears to have been done to keep Lake Victoria clean and the resources sustainable the Lake continues to face the following problems, which need very serious consideration by the Workshop:

- i. Increasing demand for Nile perch to be processed for export;
- ii. Excessive fishing effort and increasing industrial processing capacities;
- iii. Continued use of illegal fishing gears and practices;
- iv. Inadequate enforcement of adopted management measures;
- v. Degradation of fish habitats caused by increased levels of pollution, siltation, deforestation etc.;
- vi. Catching, processing and marketing of immature fish;
- vii. Loss of biodiversity where now there is dominance of Nile perch, the freshwater sardines (*dagaa/mukene*) and tilapia and the once popular indigenous fish species are declining or have disappeared;
- viii. Limited dissemination of information on best practices for responsible fishing;
- ix. Insecurity in the lake in the form of increasing law breaking, piracy, fishing gear theft etc.;
- x. Weak extension services;
- xi. Inadequate infrastructure;
- xii. Poverty, illiteracy among fishers;
- xiii. Limited involvement and participation of fishers in the management of the fishery. The recent initiative to establish Beach Management Units (BMU) as a way of involving fishers in fisheries management needs to be given all the support;
- xiv. HIV/AIDS and other diseases like malaria are on the increase among fisher communities. This may reduce the economically productive population.

I appeal to the workshop to pay special attention to the above listed problems and provide guidance on how they can be dealt with as a priority.

Madam Chairperson, I am of the view that all stakeholders have to play their role to ensure the well being of the lake and its resources. There is specifically the need to increase the scientific understanding of the living resources, the ecosystem, the impact of climate change, human population and settlement around the basin, industrialisation, over-fishing; and other threats like pollution, water hyacinth etc. The close participation of fisher communities in the management of the lake resources needs to be understood at all levels of decision making and strengthened through empowerment and capacity building.

Madam, Chairperson, allow me to conclude by placing before you that fish does not recognise man made boundaries and therefore its wise management requires the collaborative effort of all stakeholders.

I thank you the Honourable Minister and through you the Government and people of the Republic of Kenya for the warm reception and the hospitality extended to us since our arrival in this beautiful Municipality. I appreciate the excellent facilities provided for the Workshop.

I thank you for listening to me and wish you fruitful deliberations.

APPENDIX 3: OPENING SPEECH

future of the lake that we have a regional, ecosystem-wide mechanism for promoting good management of lake resources. The LVFO provides this much needed mechanism as far as the fisheries resources are concerned.

in the riparian States are introducing Beach Management Units (or BMUs) as community-level institutions to give the fishers of Lake Victoria a strong tool for participation. These BMUs are still very young institutions, and they need further support and guidance to ensure that they fulfill their full potential. Their roles, responsibilities and operations need to be further specified and put on a firm legal foundation, and they have to further develop their technical and managerial skills. But we are convinced that the BMUs are the right way forward for community participation in fisheries management on the lake.

The purpose of this workshop is to review and analyse the status of BMU development on Lake Victoria in light of international experiences of co-management arrangements in the fisheries sector. Specifically, the workshop wants to achieve the following:

- i. Provide an overview of the status of BMU development and practical experience with co-management in Kenya, Tanzania and Uganda;
- ii. Elucidate information, legal and financial aspects of community participation, and assess their relevance for Lake Victoria;
- iii. Review co-management experiences in fisheries in other regions and identify lessons for Lake Victoria;
- iv. Identify strategies for the further development of BMUs on the lake, including linkages at regional level.

The workshop will produce a set of *Recommendations for the Further Development of BMUs on Lake Victoria*. Workshop presentations and discussions will be published as a *Report on the International Workshop on Community Participation in Fisheries Management on Lake Victoria: The BMU Development on Lake Victoria*.

Ladies and Gentlemen

The workshop participants represent the main stakeholder groups in the lake fisheries. I am particularly pleased to see such a substantial representation of fisher communities from around the lake. I also appreciate the participation of experts from outside our region who have come to contribute their expertise on matters of fisheries management. In view of this rich collection of experience, I am confident that the Workshop will achieve its objectives. I wish to urge you, however, to follow up on what you agree during this week, once you return to your respective workplaces. Let this workshop mark the start for responsible community participation in fisheries management around Lake Victoria.

I wish to thank the LVFO and IUCN for organising this workshop, which is a timely contribution to answering pertinent issues in fisheries management of Lake Victoria. I thank NORAD for providing the funds through the Nile Perch Fishery Project; and I hope that our partnership on Lake Victoria will continue for many years.

I hope you will find time to visit several places of interest in Kisumu City to appreciate the beauty of this lakeside city.

With these few remarks, I officially open this workshop and wish you all fruitful deliberations and a good stay in Kenya.

APPENDIX 4: STATUS OF LAKE VICTORIA FISHERIES

By W. Kudoja

ABSTRACT

Lake Victoria is endowed with fisheries resources that support riparian communities amounting to about 30 million people. The impact of the human activities in the lake basin is having its toll on the health of the lake. Coupled with illegal fishing practices, too much fishing effort and invasive weeds the fishery is becoming unsustainable. The present fisheries of Lake Victoria is dominated by only three species now namely *Rastrineobola argentea* (*mukene, omena, dagaa*), *Oreochromis niloticus* (Nile tilapia) and Nile perch (*Lates niloticus*). The Nile perch is heavily exploited due to the existence of the fish processing factories along the lake shore. At present, the present stock of Nile perch is estimated to be around 220,000 metric tons whereas the factories were processing fish close to that figure. Management measures have been put in place including the ban on the fishing and processing of Nile perch in the size range 50-85cm. This paper is a review of the history of the Lake Victoria fisheries, the scientific and management efforts that have been suggested over the years and the present status of the fishery. The paper highlights the efforts that have been proposed by the scientific community and the role of the LVFO in the fisheries of Lake Victoria.

INTRODUCTION

Physical features

Lake Victoria touches the Equator in its northern reaches, and is relatively shallow, reaching a maximum depth of about 80 m, and an average depth of about 40 m. The lakes shoreline is long (about 3,500 km) and convoluted, enclosing innumerable small, shallow bays and inlets, many of which include swamps and wetlands, which differ a great deal from one another and from the lake itself. Lake Victoria, with a surface area of 68,800 km² and an adjoining catchment of 184,000 km², is the world's second largest body of fresh water, and the largest in the developing world, ss now nameaa), O (heand teaa), d2hdd that f thesh

Origin of Lake Victoria

Despite such changes, the haplochromines appeared to be thriving in the 1950s. Until the 1970s, Lake Victoria had a multi-species fishery dominated by the tilapiine and haplochromine cichlids. There were important subsidiary fisheries for more than 20 genera of non-cichlid fishes, including catfishes (*Bagrus docmak* (Forskall), *Clarias gariepinus* (Burchell), *Synodontis* spp and *Schilbe intermedius*), the lungfish (*Protopterus aethiopicus* (Heckel)) and *Labeo victorianus* (Kudhongania & Cordone 1974), (Greenwood, 1960). Stocks of most of these species declined and others disappeared following the introduction of four tilapiines (*Oreochromis niloticus*, *Oreochromis leucostictus*, *Tilapia rendalli* and *Tilapia zillii* (Grevais)) in the 1950's (Witte *et al.*, 1992).

The Nile perch (*Lates niloticus*) was also introduced for sport fishing and to convert the haplochromines into a bigger fish flesh. In the 1970's the haplochromines dominated the fishery and trawling for fishmeal processing was introduced in Tanzania to utilize what was considered a trash fish due to its small size. The Nile perch having no competitor in the lake fed on almost all the fish species including its own young. Until 1978, Nile Perch remained a very small proportion of the commercial catch, less than 5 percent. In 1979 pilot surveys suggested the lake's fish biomass was unchanged: it still appeared to consist of 80 percent haplochromines and less than 2 percent Nile perch. But in 1980 an abrupt change showed up in Kenyan waters, and within two years it appeared in Ugandan and Tanzanian waters too. Nile perch suddenly jumped to 80 percent of the biomass, and haplochromines dropped to 1 percent. Then in 1978 a very rapid expansion of the proportion accounted for by Nile Perch took place, with the result that by 1990 the commercial catch had a totally different composition, dominated by Nile Perch (almost 60 percent) and *omena* (most of the remaining 40 percent). The haplochromines, and the mixture of other fish had virtually vanished from the commercial catch. The fishery is now dominated by Nile perch, Nile tilapia and the native cyprinid species,

Industries are also major sources of pollution. The basic industries that are common to most of the major urban areas are breweries, tanning, fish processing, agro processing (sugar and coffee) and abattoirs.

RESOURCE MONITORING

Fisheries research has been carried out in Lake Victoria since the 1920's to determine the biology of the fishes, their abundance and distribution in space and time. This has been done by conducting; frame, trawl, catch assessment and hydro-acoustic surveys accompanied by environmental monitoring (temperature, oxygen, pH *secci* disc transparency).

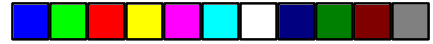
Hydro-acoustic surveys

Hydro-acoustic surveys were carried out twice a year in February and in August to coincide with the rainy and dry season respectively. The survey was done by transmitting acoustic signals to the water and capturing the reflected signal. Calibration of the instruments was done such that there was a correspondence between the amount of signals received and the abundance of the fish in the water. Target strength experiments were conducted in order to differentiate signals from the various species mainly; Nile perch, tilapia, dagaa and haplochromines and caridina. The method enables the scientist to monitor the abundance of the fish and their distribution in space and time.

Trawl surveys

For standing stock biomass ($t\ km^{-2}$) and abundance (t) estimates, mean catch rates per 15 by 15 nautical mile squares were used. Each square was allocated a reference number (Fig. 1) and using GPS positioning hauls were allocated to the specific squares.

The swept area method (Sparre & Venema, 1992; 1998) was used to estimate the biomass of the demersal stocks. The effective path swept, A , or the area within which fish are susceptible to capture was estimated as:



The area swept, $A_{sw} = V \times t \times h \times X_h \times X_e$ was therefore estimated using the following parameters:

- i. Speed of the vessel (V) = 3.5 nautical miles \times 1.852 km hr⁻¹
- ii. Time spent trawling (t) = 0.5 (half an hour)
- iii. Head rope length (h) = 24 m
- iv. Width of path swept (X_h) = 0.33
- v. Catchability efficient (X_e) = 1

For the estimation of biomass, catch per unit area (CPUA t km⁻²) or the standing crop is used and calculated by dividing the catch by the area swept. If W is the weight of the fish caught (kg) by the trawl in one haul, then $CPUA = W/A_{sw}$, where A_{sw} is the area swept.

Abundance index estimates for the three riparian countries (Figure 2) illustrates the proportion contribution from each of the three national waters. Tanzanian waters supported the highest proportion followed by Uganda and Kenya. Almost the same pattern of seasonal variation in abundance was found in Uganda and Tanzania. The total lake wide Nile perch biomass estimates varied from 461 032 t for the fourth quarter in 1998 to a maximum of 912 279 t in the third quarter 1999. An average abundance index of Nile perch for the whole lake between the fourth quarter in 1997 and the third quarter in 2000 was 584 122.6 \pm 89 044.5 t. Excluding the 1997 and 1998 estimates (gears and methodology were not standardized), this average abundance index was adjusted to 685 082.2 \pm 70 449.6 t. The estimates are only for Nile perch, which contributed 91.6% of the total catch and thus implying a total abundance of 747 906.5 t for the stocks in Lake Victoria. Hydro-acoustic results gave a mean biomass index of 2.17 \times 10⁶ t corresponding to standing stock biomass of 31.0 t km⁻², of which *L. niloticus* constituted 59.3%, *R. argentea* (dagaa) 22.4%, haplochromines 15.0%, *Caridina nilotica* 1.1% and other species 2.2% (Getabu *et al.*, 2002).

Standing stock biomass (CPUA) was calculated to establish the relative productivity of the respective National waters. Kenyan waters exhibited very high catch rates in 1998 while Ugandan waters were very low. The differences were probably due to differences in gears. With standardized gears from 1999, using the two-way ANOVA, there was no significant difference between national waters ($F_s = 0.279$, $F_{0.05(2,20)} = 3.885$, $P = 0.761$) but there was a significant difference between the quarters ($F_s = 3.829$, $F_{0.05(6,20)} = 2.996$, and $P = 0.023$). The Nile perch average standing stock estimate for the whole lake was 10.45 \pm 0.8 t km⁻² for the period 1999 to 2000.

Figure 1: Lake Victoria map showing 15 by 15 nautical mile sampling squares with the reference letters and numbers along the sides (Mkumbo, 2002)

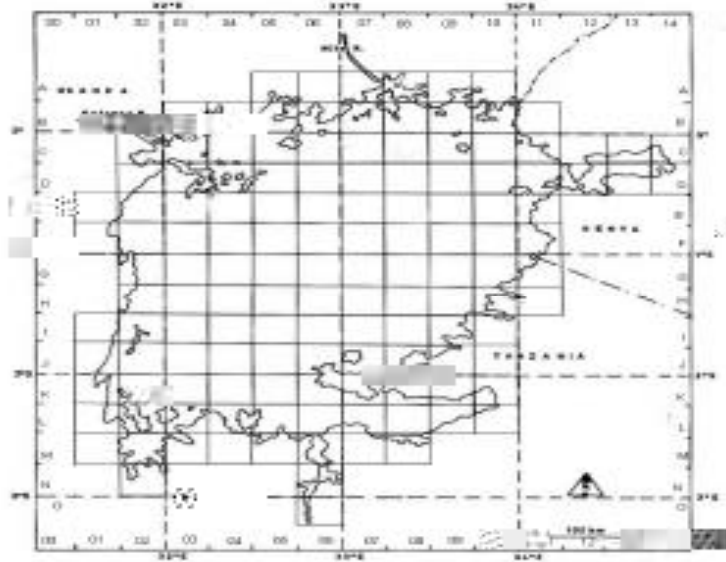


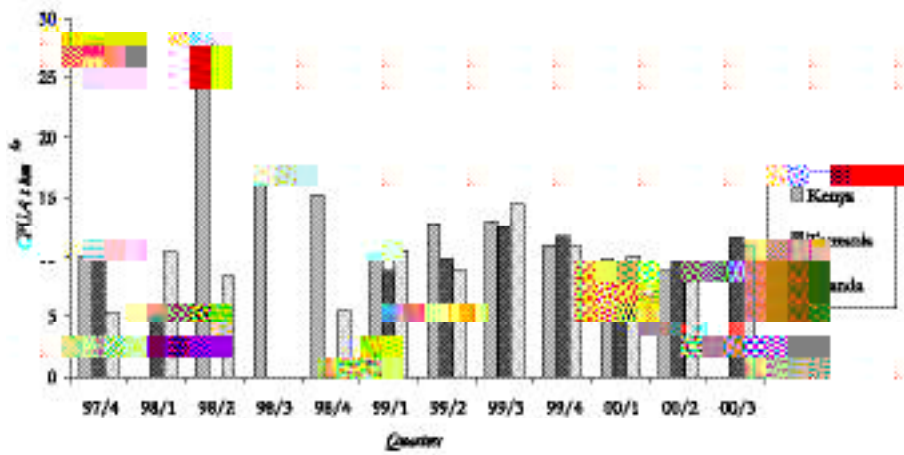
Figure 2: Abundance indices for Nile perch in Lake Victoria by country and quarter from bottom trawl surveys in the period 1987 – 2000 (Mkumbo, 2002)

Catch assessment surveys

Frame surveys

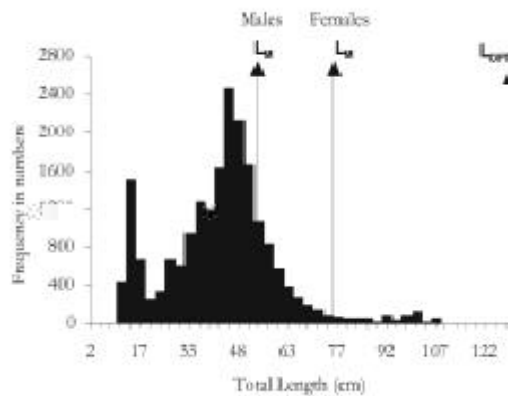
Frame surveys are carried out once every two years. During the frame survey exercise all boats,

Figure 3: Catch per unit area ($t km^{-2}$) for Nile perch in Lake Victoria by country and quarter from bottom trawl surveys in the period 1987 – 2000, (Mkumbo, 2002)



Juveniles dominated the Nile perch catches as indicated in figure 4. This is growth over-fishing as also observed elsewhere (Sparre et al, 1989, Hilborn & Walter 1992 and King, 1995). With gill net fleets 5-6 inches mesh size dominated (figure 5) while in 1990/91 was dominated by 7-9 inches mesh size gill nets (Ligvoet & Mkumbo, 1991).

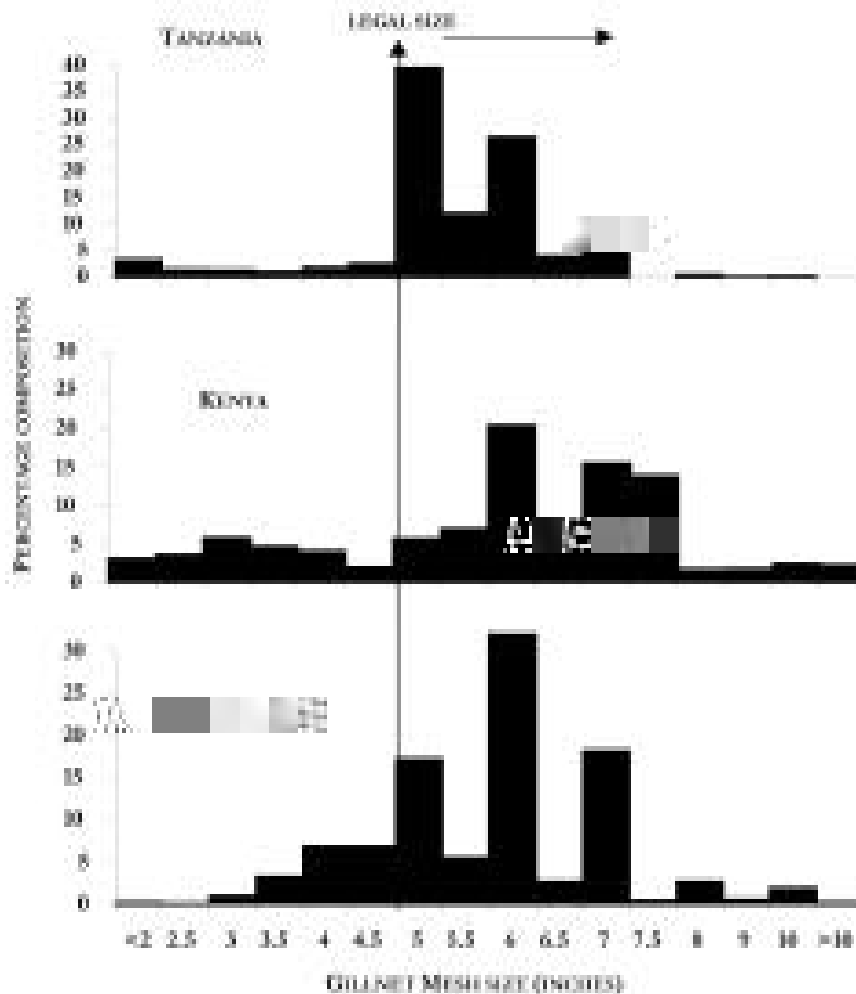
Figure 4. Pooled monthly length frequency data from catch surveys indicating l_m and l_{opt} (l_{m50} for males = 54.3 & females = 76.7 cm tl; l_{opt} = 135.9 cm tl) for Nile perch in Tanzanian waters, Lake Victoria (Mkumbo, 2002)



Long lines catches

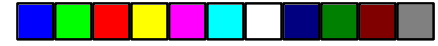
Similar frequency distributions of catches were observed for all the hook sizes used in the Tanzanian waters (numbers 7 – 12), (Fig. 6). Nevertheless, long lines harvested relatively more mature Nile perch. About 68% and 85% were below size at first maturity (Lm50) compared to 83% and 99% for the gillnet catches for males and females respectively. From figure 6, although hook sizes 7-9 harvest relatively more of mature Nile perch, they also harvest the sizes above 85 cm TL that should probably be prohibited to protect the brooders. It is therefore quite difficult to limit hook sizes within the slot size. Likewise, hooks will encourage the use of beach seines to collect the baits. Hooks for Nile perch fishery should therefore be discouraged.

Figure 5. Percentage composition of gillnets with different mesh sizes used within country waters for the three riparian states. (Data from 2000 frame survey report). (Mkumbo, 2002)



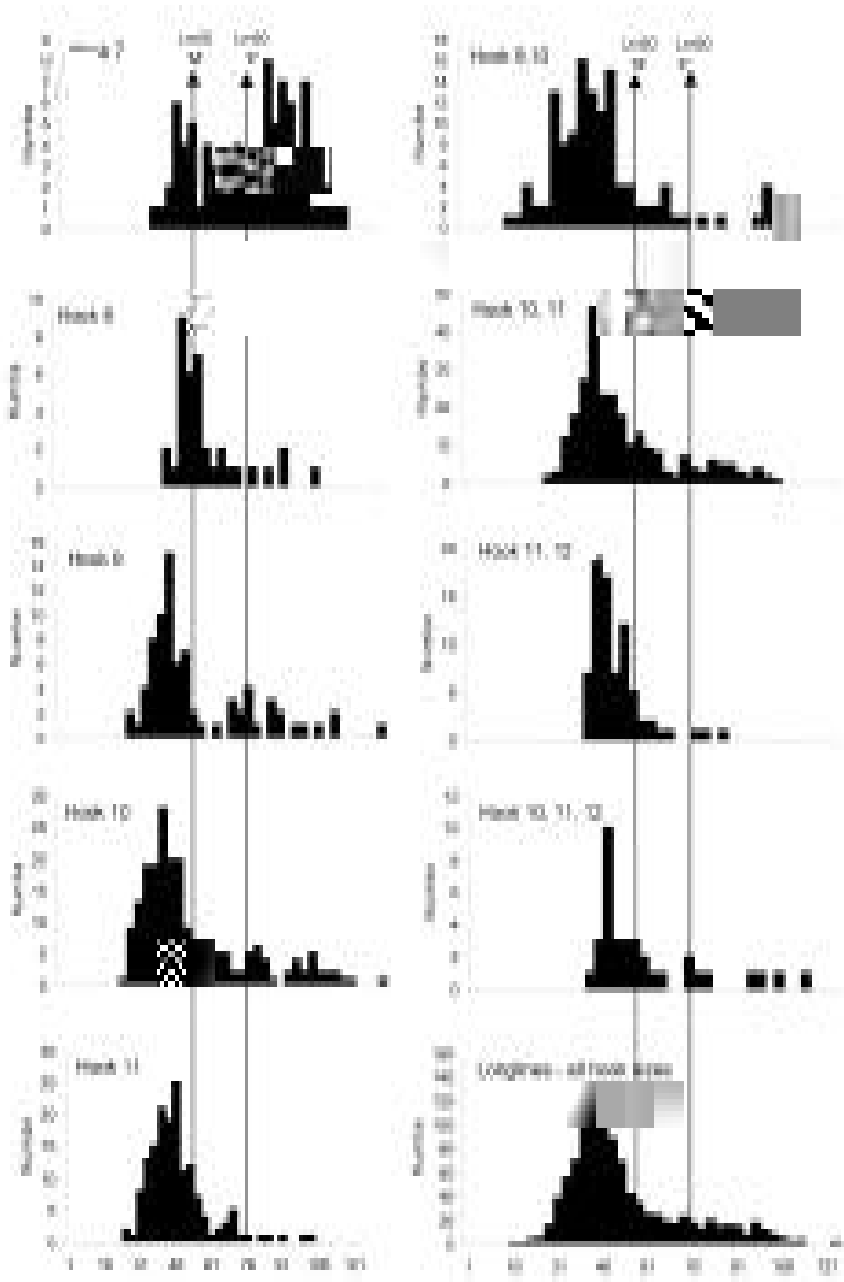
Biological Indicators

Presently the Nile perch fishery of Lake Victoria is exhibiting signs of over fishing as shown by biological indicators like the reduction in age/length at first maturity, higher mortality, and an increase of immature fish in the fishery. The signs of an overexploited fishery are also shown by



the decrease in the sizes of the fish caught. The modal length has decreased from 70-80 cm TL (1988), 50-60 cm TL (1992) to 40-50 cm TL in 1994. There has also been a reduction of the size of fish at first maturity. In Tanzania the male's sizes have reduced from 60-cm TL males and 95-100 cm TL in females in 1988 to 50-55 cm TL and 70-80 cm TL in males and females respectively (Bwathondi *et al.*, 2001).

Figure 6. length frequencies from long lines of different hook sizes in Tanzanian waters. (lm50 for males 'm' and females 'f' indicated) (Mkumbo, 2002)



RESEARCH FINDINGS AND RECOMMENDATIONS

1. The Nile Perch Fishery

Acoustic surveys

Major findings

Total biomass index changed only slightly over the entire period of two years. Nile perch stock declined from 790,000t in 1999 to about 540,000t in September 2001. The biomass index for dagaa and haplochromines (small pelagics) indicated a considerable increase of the two population components. Inshore waters of less than 40m in depth supported higher standing stock, nearly four times higher, than the case for deeper offshore waters. Target strength functions for both Nile perch ($TS = 20 \log L - 66 \text{ dB}$) and dagaa ($TS = 20 \log L - 72 \text{ dB}$) were obtained from cage experiments.

Recommendations

Target strength information of Nile perch is needed. Studies on gear efficiency with the aim of establishing selectivity for the different species should be instituted. The current sampling design should be revisited to consolidate more sampling effort in the inshore areas.

Stock assessment/bottom trawl surveys

Major findings

Stock abundance fluctuated over the years, and a general declining trend was observed. The batho-spatial distribution pattern exhibited a decline in stock abundance with depth. High catch rates were recorded at the depth range of 30-39 m. Standing stock (CPUA) was estimated at $10.45 \pm 0.8 \text{ t km}^{-2}$ and there was no significant difference between national waters. Both fisheries dependent data and fisheries independent show dominance of juveniles indicating growth over-fishing.

Recommendations

There is a need to trawl at night as well to establish distribution patterns. Migration patterns should be studied by covering all the national waters. The width of the path swept needs to be established by the use of Furuno CR24 net sonder, while experiments have to be done to find out the correction factor for the different vessels used instead of using the same factor. Limnological data should be collected alongside the surveys to explain the distribution patterns of fish. All the data shows that effort should be reduced by 50%.

Biology and Catch Assessment

Findings

The gears in use as per Frame Survey 2000 include gill nets, long lines, cast nets, beach seines and hand lines. A total of 462,417 gill nets (of <2.5->10.0 inch mesh size) were in use in Lake Victoria during 2000; 20.4% of the nets were <5.0 inch mesh size. The high exploitation rate of 0.73-0.84 calls for urgent action to reduce fishing pressure. Yield per recruit analysis suggests the fishing effort should be reduced by approximately 50% to achieve optimal yield. Juveniles seem to occupy all depth ranges during the different seasons. The population of Nile perch during the bottom trawl surveys was dominated by fish smaller than 50 cm TL that comprised about 80% of the catches (by weight). The hooks of size 10 and bigger harvested mostly mature Nile perch. Recruitment of Nile perch into the fishery occurred throughout the year. Two peaks in recruitment to the populations, the first in March-April and a lesser peak in November.

Recommendations

The hooks of size 8-10 are ideal for the fishery. The 127 mm mesh gill net, recommended for harvesting Nile tilapia, is recommended as the minimum mesh for the gill net for Nile perch although it harvests 39% immature fish. There is a need to revive the statistical data collection in Uganda and Tanzania. A well-designed uniform stratified Catch Assessment Surveys system is needed for the lake.

2. Relevant factors in the management of Nile tilapia in Lake Victoria**Findings**

The greatest stocks of Nile tilapia (at least 60 % biomass of all fish) occurs in less than 5 meters littoral regions and sharply decrease with depth. The size structure of the Nile tilapia varies among different bays of the lake due to differences in fishing intensity. Mean catch rates (kg ha^{-1}) from trawl and gill nets surveys between 0-5 m deep areas ranges from 16-50 kg ha^{-1} . The breeding occurs throughout the year with two peaks (March to June and October to December). The breeding and nursery grounds are in the shallow vegetated areas (< 4 m deep) within 100 m from the shore. This is based on the presence of young fish (< 15 cm TL) and breeding females (gonadal state V). The size at 50% maturity varies between 25-35 cm TL. The gill net mesh size that can be used to capture mature Nile tilapia is 127 mm (5") and above operated passively and away from the shoreline (100 m). The net would capture large mature non-breeding fish. This concurs with the minimum size (27 cm TL) at which the three countries agreed to harvest Nile tilapia.

Recommendations

The minimum mesh size that should be used to capture mature Nile tilapia is the 5" (127 mm) gill net operated passively 100 m or more away from the shoreline. The use of certain fishing methods e.g. gill net actively operated, cast nets, fish herding, water splashing, setting gillnets along the shore line etc should be prohibited. Mosquito seines should not be operated within 100 m from the

Findings

- iv) More research is required to establish the gear selectivity of the 5 and 10mm nets for the fishing of dagaa.
- v) The prevalence of *ligula intestinalis* should be studied.

DISCUSSION

The fishery of Lake Victoria is definitely in dire need of attention if it is to remain sustainable. Beach seines and all other forms of illegal gears should be eradicated as recommended by the scientists. Research should be continued to establish the breeding and nursery areas so that they may be gazetted. Enforcement of fishing regulations is a very big task for such a big lake, the communities should be trained and empowered to take part through beach management units. They can perform other tasks like collection of the vital statistics apart from co-managing.

For the Nile perch fishery to remain sustainable, there has to be enough breeders each year. The 50-85 cm slot size should be enforced much more rigorously. The use of long lines should be discouraged, as they tend to crop the 85cm and above slot size which are the most fecund age group. Moreover the fishery relies on bait, which is obtained using illegal gears. The fishery for the prey of Nile perch i.e. *Caridina* and haplochromines should be prohibited.

CONCLUSIONS

The Nile perch fishery is over-fished while there are gaps in knowledge to be addressed. In order to maintain the health of the Lake Victoria ecosystem, human activities have to be regulated to reduce water pollution.

RECOMMENDATIONS

For the fishery to remain sustainable all illegal gears should be removed. Access to the lake has to be regulated to avoid over-capacity. Resource monitoring should continue in order to provide the status of the stocks. Beach management units should be empowered to take part in co-management of the resources and collect the vital fisheries statistics.

REFERENCES

- Asila A. (2001): Selectivity of gill nets on Nile perch populations of Lake Victoria, Kenya. Masters thesis submitted to Moi University, Kenya.
- Bwathondi , P. O. J, R. Ogutu-Ohwayo and J. Ogari .(2000): Lake Victoria Fisheries Management Plan. LVFRP/Tech/01/16.pp 64.
- Dickson W. (1993): Estimation of the capture efficiency of trawl gear. I: Development of a theoretical model. II: Testing a theoretical model. *Fisheries Research* 16, 239-272.
- Getabu A., Tumwebaze R. & MacLennan D.N. (2002): Spatial and temporal distribution of fish populations in Lake Victoria. A paper presented in the 6th ICES Symposium on Acoustics in Fisheries and Aquatic Ecology. Montpellier, France, 10-14 June 2000.
- Greenwood, P. H. (1960): The Fishes of Uganda. *Uganda Journal*. Greenwood, P.H. (1966). *The fishes of Uganda, 2nd edn. Uganda Society, Kampala*
- Hilborn R. & Walters C.J. (1992): Quantitative Fisheries Stock Assessment: Choice, Dynamics and Uncertainty. Chapman and Hall. 570 pp.
- Isarankuru A. P. (1971): Assessment of stocks of demersal fish off the west coast of Thailand and Malaysia. FAO/UNDP, Indian Ocean Programme, Rome, IOC/DEV/71/20. 20 pp.
- King M. (1995): *Fisheries Biology, Assessment and Management*. Fishing News Books. 341 pp.

- Ligtvoet W. and Mkumbo O. C. (1991): A pilot sampling survey for monitoring the artisanal Nile perch (*Lates niloticus*) fishery in southern Lake Victoria (East Africa). In: I.G. Cowx (ed.) *Catch Effort Sampling Strategies. Their Application in Freshwater Fisheries Management*. Fishing News Book. Blackwell Scientific Publications Ltd., pp. 349-360.
- Ligtvoet W., Mkumbo O. C., Mous P. J. & Goudswaard P.C. (1995): Monitoring fish stocks from survey data. In: F. Witte and L.T. van Densen (eds) *Fish Stocks and Fisheries of Lake Victoria: A handbook for field observations*. Samara Publishing Limited, pp. 119-134.
- Ligtvoet, W. and F. Witte. (1991): Perturbation through predator introduction: effects on the food web and fish yields in Lake Victoria (East Africa). *Terr. And Aq. Ecosy.* 264 - 268.
- Mkumbo O. C. (2002): Assessment and management of Nile perch (*Lates niloticus* L.) stocks in the Tanzanian waters of Lake Victoria. PhD Thesis, University of Hull.
- Ochumba, P. B. O., and D. I. Kibara. (1989): Observations on blue-green algal blooms in the open waters of Lake Victoria, Kenya. *African J. Ecol.* 27: 23-34.
- Ogari, J. and S. Dadzie. (1998): The food of the Nile Perch, *Lates niloticus* (L.), after the disappearance of the haplochromine cichids in the Nyanza Gulf of Lake Victoria (Kenya). *J. Fish Biol.* 32: 571 - 522.
- Ogotu-Ohwayo, R. (1990): The decline of the native fishes of Lakes Victoria and Kyoga (East Africa) and the impact of introduced species, especially the Nile perch, *Lates niloticus* and the Nile Tilapia, *Oreochromis niloticus*. *Environ. Biol. Fish.* 27: 81-90.
- Pauly D. (1980): A selection of simple methods for the assessment of tropical fish stocks. *FAO Fisheries Technical Circular 729*, 54 pp.
- Pauly D. (1983): Some simple methods for the assessment of tropical fish stocks. *FAO Fisheries Technical Paper 234*, 52 pp.
- Regional Report on Lake Victoria Fisheries Frame Survey, (2000): Authored by The Frame Survey Technical Committee, Feb. 2001.
- Sparre P. & Venema S. C. (1998): Introduction to tropical fish stock assessment. *FAO Fisheries Technical Paper 306.1 (Rev.2)*, 49 pp.
- Sparre P., Ursin E. & Venema S. C. (1989): Introduction to tropical fish stock assessment. Part 1. Manual. *FAO Fisheries Technical Paper 306*, 337 pp.
- Wandera, S.B. (1990): The exploitation of small pelagic fishes of the Great Lakes of Africa with reference to the mukene (*Rastrineobola argentea*) fishery of the northern waters of Lake Victoria. In: *Fisheries of the African Great Lakes. Occasional Paper 3*. IAC, Wageningen, pp. 67-74.
- Wandera, S. B. (1992): A study of *Rastrineobola argentea* in the Ugandan lakes. p. 36-50. In: P. Mannini (ed.) *The Lake Victoria daga (Rastrineobola argentea)*. Report of the First Meeting of the Working Group of the Lake Victoria *Rastrineobola argentea*, f the Aa4 652hmn3371Tf 4nder muk0 & 0.049o00)93 Tc8to




APPENDIX 5: INSTITUTIONAL MECHANISMS FOR MANAGEMENT OF FISHERIES RESOURCES OF LAKE VICTORIA

By R. Ogutu-Ohwayo

BACKGROUND

Lake Victoria is the second largest lake in the world and the largest in Africa. It covers an area of 68,800km². The lake is shared by the three East African Community (EAC) Partner States of Kenya (6%), Tanzania (51%) and Uganda (43%) and therefore requires a regional mechanism in management of its resources. It has a coastline of 3,450 km. The catchment area of the lake is 194,200 km² and spreads to Rwanda and Burundi. The lake produces about 500,000 tonnes of fish valued at more than US\$ 600 million annually. The lake is a source of fish as food, employment, income, and export earnings, clean water and is used for navigation and recreation. The lake had high fish species diversity of ecological and economic importance.



The development objective of the Partner States sharing Lake Victoria is to eradicate poverty. The fisheries sub-sector objective is to contribute towards poverty eradication by sustaining and increasing fishery production through sustainable exploitation of capture fisheries and through aquaculture (fish farming) respectively. There are, however major threats to the capture fisheries of Lake Victoria, which have resulted into, decline in catches and fish species diversity and deterioration in fish habitat. These include: excessive fishing effort; use of destructive fishing gears and methods; capture of immature fish; high post harvest fish losses; input of nutrients and contaminants; poor dissemination of management information; delays in updating laws and regulations; inadequate enforcement of laws and regulations; limited involvement of fishers in management of fisheries; and conflicts in resource access especially along international border areas.

Some of the critical requirements for management, and optimisations of benefits from fisheries include: availability of appropriate information and data to guide management of fisheries resources; effective institutions and institutional mechanisms to provide the required data and information, promote sustainable use practices, and enforce laws and regulations; mechanisms to involve stakeholders in development and management of the fisheries resources; adequate human and financial resources; and availability of markets and mechanisms to ensure compliance to fish quality and safety standards.

The three riparian states of Lake Victoria have co-operated in development and management of the fisheries resources of Lake Victoria since 1929 when the first fishery survey of the lake was conducted. This culminated in setting up of the East African Fisheries Research Organization (EAFRO) in 1947 and the Lake Victoria Fisheries Service to collect data and manage the fisheries of the entire lake. When the first East Africa Community (EAC) was formed in 1967 EAFRO continued as a regional institution under the EAC. Even after the collapse of the first EAC in 1977, fisheries development and management on the lake continued to be coordinated regionally by an FAO Sub-Committee for

Inland Fisheries of Africa (CIFA) until the three countries formed the Lake Victoria Fisheries Organisation to coordinate fisheries activities regionally. When the current EAC Treaty was signed on 30th November 1999, LVFO became a specialised regional institution of the EAC.

THE PROGRAMS OF THE LVFO

The LVFO developed a Strategic Vision for 15 years (1999 – 2015). To enable it implement the Vision, the Organization established five programmes namely:

- i) Fisheries policy, legislation, institutions and processes;
- ii) Aquaculture research and development;
- iii) Resource, environmental and socio-economic research and monitoring;
- iv) Databases, information, communication and outreach; and
- v) Capacity building.

Each programme has a number of Working Groups (WGs). The titles and objectives of the WGs under the different programmes are given in Table 6. Each of the WGs consists of a team of experts in the discipline covered by the WG from the fisheries management and/or the fisheries research institutions of the Partner States and their collaborators. The WGs are in charge of preparing the status reports, developing and harmonising standard operating procedures (SOPs), and prepare implementation plans of their respective areas of operation and implement the activities at national level. The WGs operate at national level as National Working Groups (NWGs) and at regional level as Regional Working Groups (RWGs). The RWGs are comprised of representatives from the relevant NWGs from each Partner States. The NWGs develop status

**THE ROLE OF NATIONAL INSTITUTIONS IN FISHERIES RESEARCH,
DEVELOPMENT AND MANAGEMENT**

The riparian countries of Lake Victoria have national institutions mandated to develop and manage fisheries resources. It is important that the institutions for development and management of fisheries resources have structures that ensure effective implementation of the programs and

TANZANIA

The organization of fisheries sector in Tanzania is generally similar to that in Uganda with Central Government and Regional/Local Government functions (Figure 9). At central government level, fishery is a division under the Ministry of Natural Resources and Tourism (MNRT). The Fishery Division is in charge of policy design and supervision of policy implementation; sectoral planning and budgeting; formulation and review of legislation; monitoring and evaluation of the sector's performance; manpower planning and human resources development for fisheries management; licensing; and fish quality control. The Division is headed by a Director assisted by four Assistant Directors incharge of the following: fisheries policy, planning, publicity, aquaculture and extension; research training and statistics; licensing, legislation and fisheries patrols; and marketing, quality assurance, quality control and laboratory services.

The District Fisheries Officer (DFO) falls under the Natural Resources and Environment sector of Ministry of Regional and Local Government (MRALG). When dealing with technical matters, the Director of Fisheries communicates with the DFO through the District Executive Director (DED) who is the chief executive officer of a district. Similarly, the DFO receives funds for fisheries management activities from the Director of Fisheries, through DED. In addition to the DFOs, there are Fisheries Assistants who are in charge of extension; licensing and surveillance work at lower levels in the district.

The local government (district level) has entered into a partnership arrangement with beach management units (BMUs), allowing them (BMUs) to carry out fisheries monitoring in their respective area.

Tanzania Fisheries Research Institute (TAFIRI) is in charge of fisheries research. Its structure and functions are generally similar to those of FIRRI.

KENYA

The organization of the Fisheries sector in Kenya is centralised (Figure 10) unlike in Tanzania and Uganda where there is decentralization. The department is in charge of policy design and supervision of its implementation, sectoral planning and budgeting, formulation and review of legislation, monitoring and evaluation of the sector's performance, manpower planning and human resources development for fisheries management; licensing and fish quality control. The Fisheries Department falls under the Ministry of Livestock and Fisheries Development, headed by a Director who is assisted by a Senior Deputy Director and two Deputy Directors, one in charge of capture fisheries and the other in charge of aquaculture. Below the Deputy Directors are Assistant Directors each incharge of the following regions: Headquarter, Nyanza and Western, Rift Valley, Coast, Eastern and Central. Below the Assistant Directors are Senior Fisheries Officers and/or District Fisheries Officers (DFOs). ral9Re locer levelsare She Fisheries sssitants Tj T* 0.0942 Tc 0.92054 Tw (a

WORKING GROUPS

The NWGs prepare status reports, SOPs and operational plans at national level. These reports and their recommendations are harmonised by the RWGs. The reports from the RWG are passed to and discussed by either the Fisheries Management Committee FMC of the Scientific Committee SC as appropriate.

THE FISHERIES MANAGEMENT COMMITTEE

Fisheries Management Committee considers management issues from the reports of the RWG and:

- i. Develops management policies based on the biological, economic, social and environmental needs;
- ii. Ensure conservation of indigenous species, including the use of refugia areas and sanctuary lakes;
- iii. Recommends measures for the management and conservation of living resources of the lake;
- iv. Develops objectives for management of constituent fish communities;
- v. Identify emerging problems to ensure long-term sustainability of the fisheries resources.

THE SCIENTIFIC COMMITTEE

The Scientific Committee considers scientific issues from the RWGs and:

- i. Identifies research requirements;
- ii. Reviews research results carried on the lake;
- iii. Harmonises, recommend and supervise standard operating procedures (SOPs) for scientific data collection, analysis, packaging and dissemination; and
- iv. Makes recommendations for dissemination of research results.

THE EXECUTIVE COMMITTEE

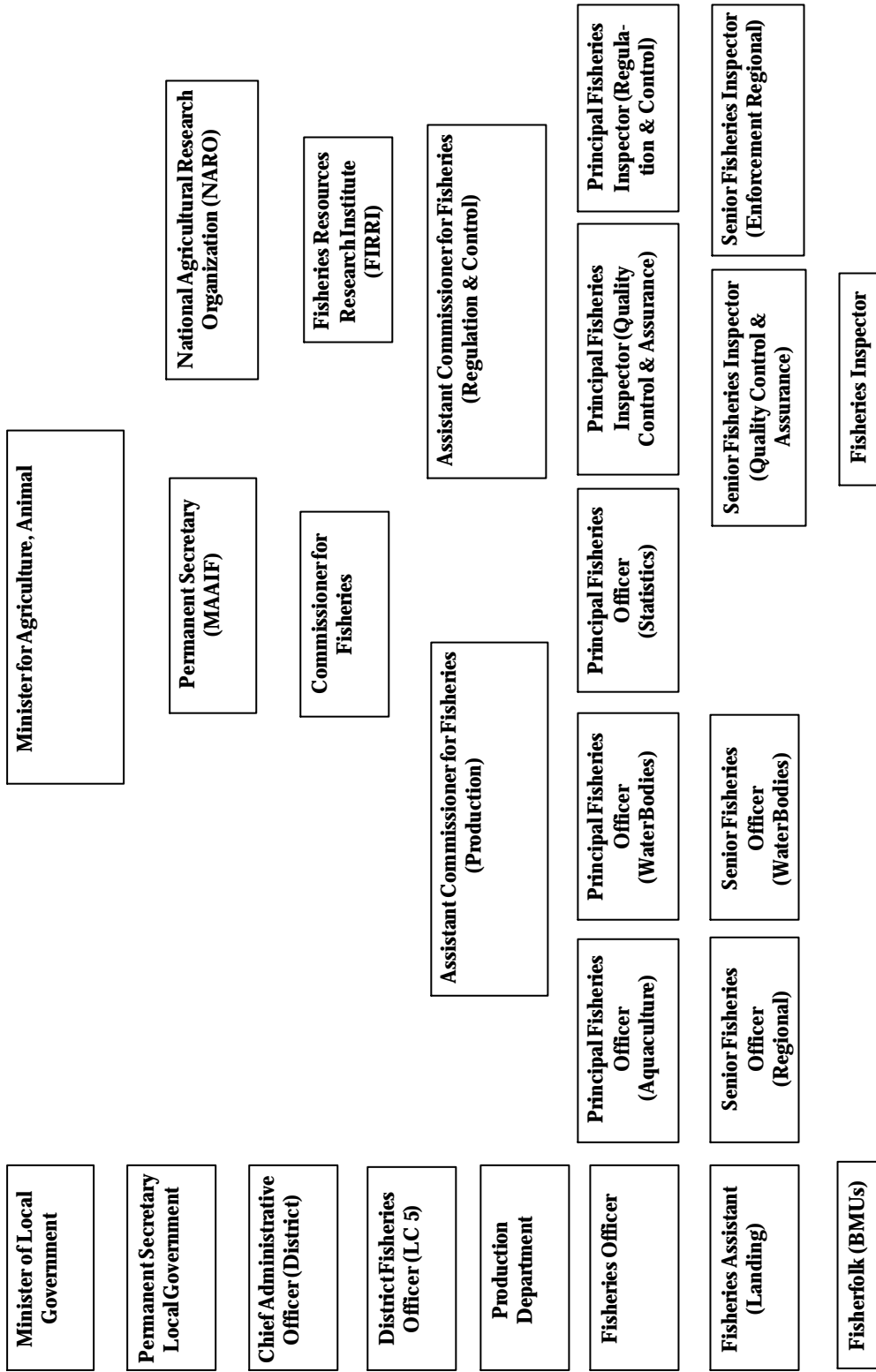
The recommendations of the Management and Scientific Committee are passed on to the Executive Committee EC. The EC:

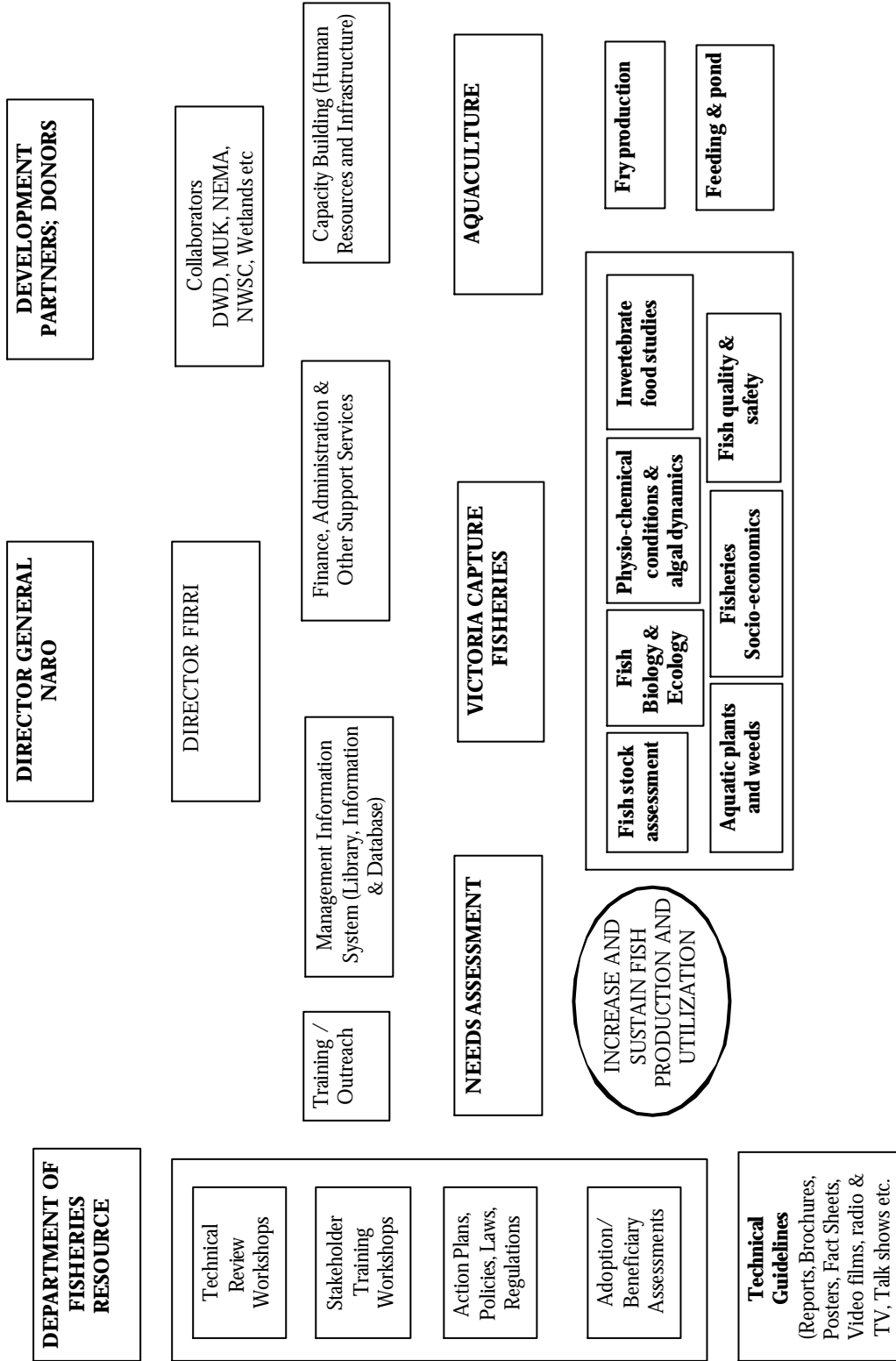
- i. Reviews the management and scientific activities being undertaken by the Organization;
- ii. Considers and agrees on immediate and appropriate management measures to be implemented at national level;
- iii. Monitors the implementation of agreed management measures and report to the Policy Steering Committee (PSC); and
- iv. Establish such sub-committees or working groups to undertake activities of the Organisation.

THE POLICY STEERING COMMITTEE

The recommendations of the EC are passed on to the PSC. The PSC:

- i. Submits the recommendations of the EC to the Council of Ministers of the LVFO;
- ii. Reviews the proposals on management and conservation measures for adoption by the Council of Ministers; and
- iii. Establishes general standards and guidelines for the management of the Organization for endorsement by the Council of Ministers.





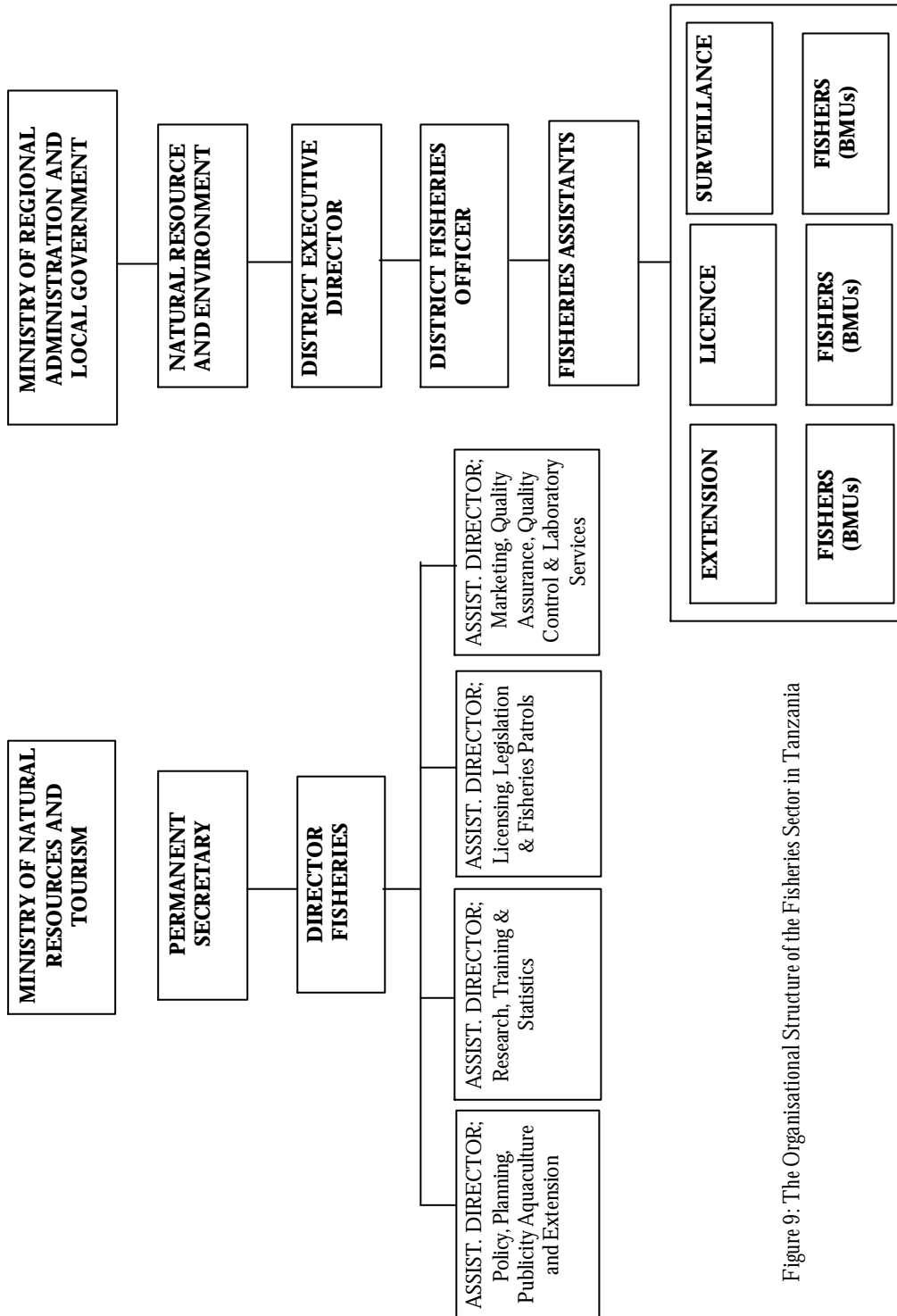


Figure 9: The Organisational Structure of the Fisheries Sector in Tanzania

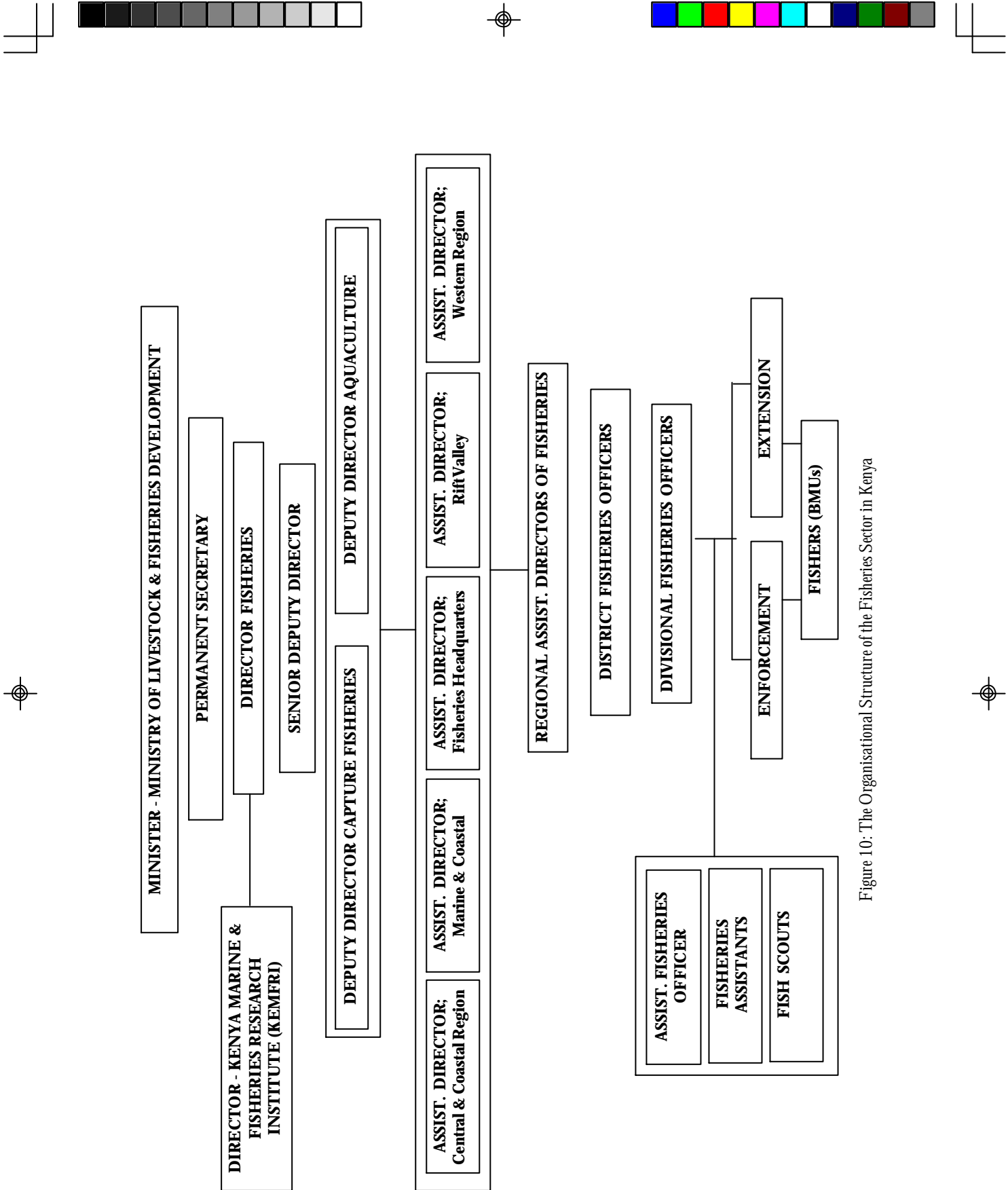


Figure 10: The Organisational Structure of the Fisheries Sector in Kenya

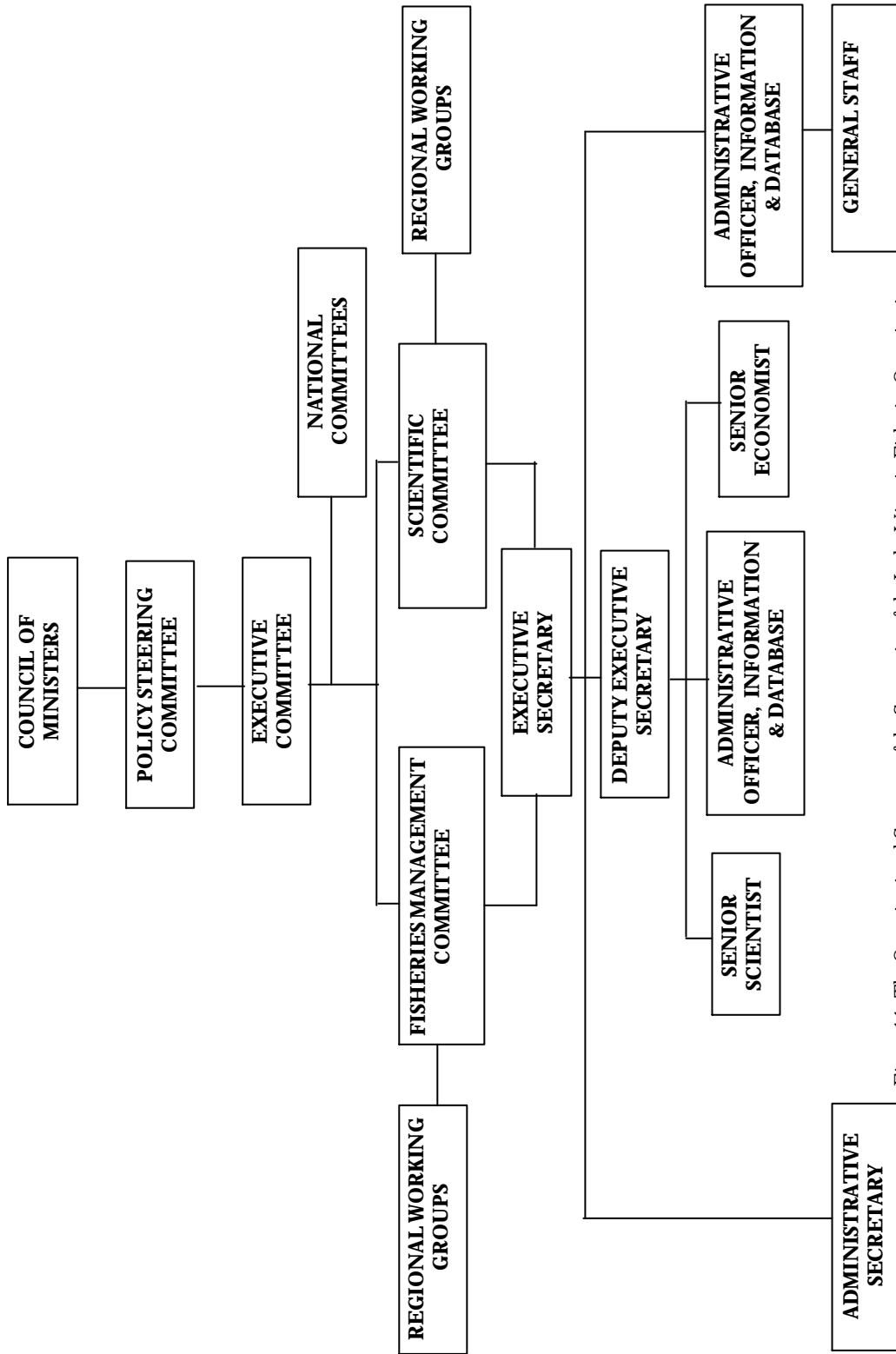
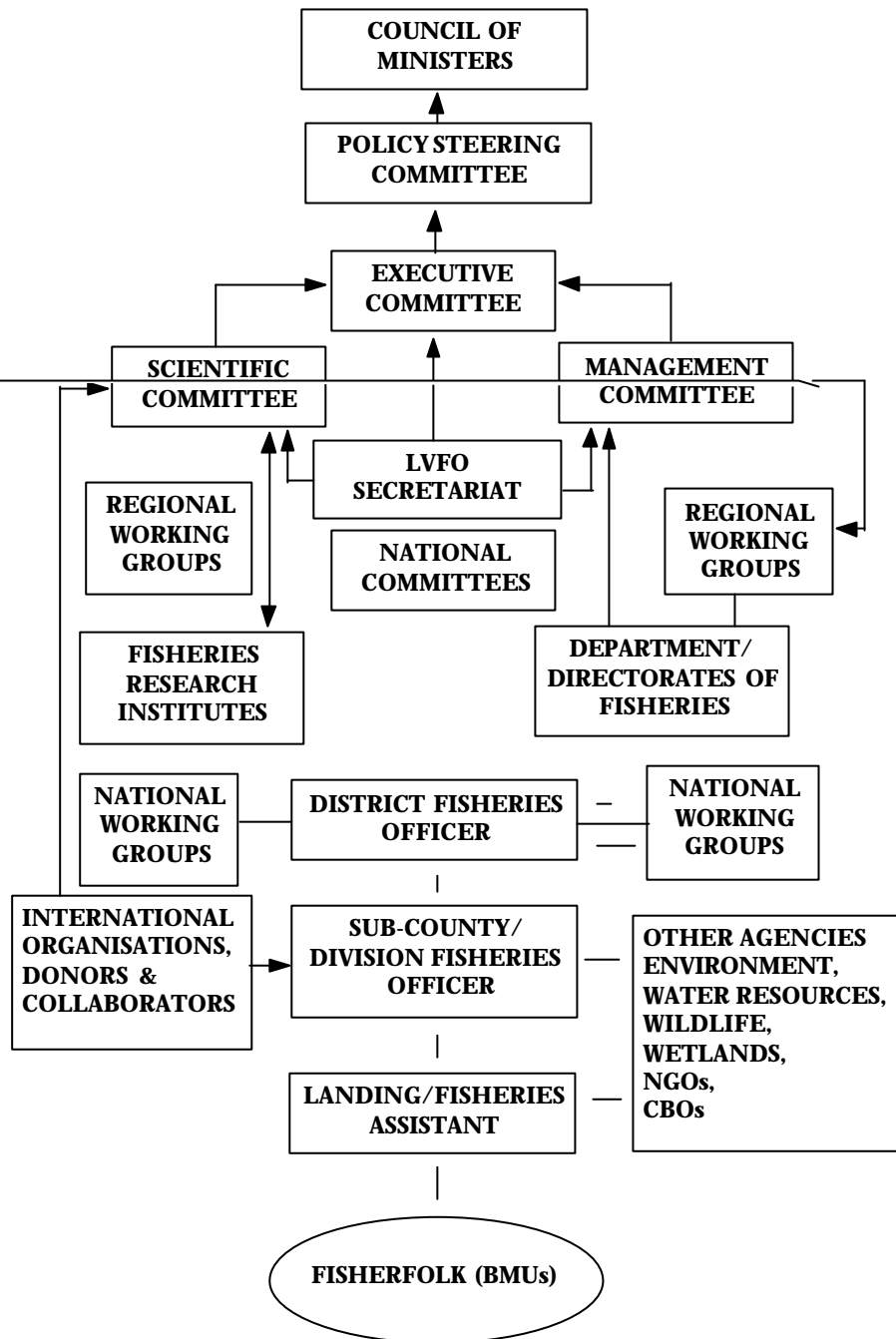




Figure 1.1: The Organisational Structure of the Secretariat of the Lake Victoria Fisheries Organisation



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- iv. financial capacity, through efforts directed at the identification and development of sources of income and funding for management groups and activities contained in management plans.

A major emphasis is placed here on building communicative capacity through the creation of frameworks of mutual obligation, care, concern, interest and common understanding. These frameworks support a process of learning through interaction, both horizontally (across agencies, sectors and even communities and countries) and vertically (agencies to communities and individuals, and local to national and regional scales and levels).

Not surprisingly then, in all these efforts particular attention is being given to the capacity development of women from fishing communities, who today play a significant role not only in the uptake of alternative livelihood activities but similarly in the decision-making of management groups. Furthermore, participatory management approaches are not limited anymore to a certain type of water bodies, such as reservoirs, but apply to the development of inland fisheries as a whole.

Monitoring of the results of a first 1-year cycle of planning and implementation in Viet Nam and Thailand have shown promising results, which are quite surprising, given the many problems faced by the user-managers. While some are more and others are less satisfied with the planning as such, most claim that they have benefited from the joint management system. The main benefits mentioned are, so far, not increases in fish catches but: better communications (between users and between users and government), sharing of experience and competence, and a greater sense of being heard.

In its support to the strengthening of co-management, the MRC Fisheries Programme as a whole responds to evolving policies expressed by the riparian line agencies, who all emphasize participatory management as a major strategy to sustainable inland fisheries development. Furthermore, it provides an important input to a major concern of the MRC and its member governments by developing examples of public participation in natural resources management and development in the Mekong Basin.

LINKAGES AND 'SCALING UP'

Co-management is largely considered to be applicable to local fisheries management. Particularly in the Mekong Basin, where migratory species are important, the question of supra-local co-management (or co-management on national and international levels) is being raised. Important considerations here are: What are valid reasons for up-scaling of co-management? What is the importance of the "local" in a transboundary context? At what level, or scale, should participation take place? And: Are some tasks better handled locally or nationally? And, finally: Who should be engaged and how should they be represented?.

REASONS

Among reasons for up-scaling are: a) "Learning from..." (the experiences made so far on local levels are good; so why not try them out elsewhere?); b) internalising externalities (management and benefits from it occur, for all practical purposes, on local level; however, they may impact on users outside the immediate locality, as well as being impacted from outside the locality); c) creating a broad base for co-operation (before meaningful co-operation on international is possible, get your act together nationally and locally, and vice versa); d) exploring interfaces and "edge effects", such as import benefits to be derived from inter-scale interactions.

SCALE AND SCOPE

There are three questions: 1) "Who will engage in management decision-making?" (This may be answered by asking "Who is really affected by management decisions?") 2) Which is the scale, or level, where user participation should take place? Is participation in fisheries management most effectively instituted at the local, or should it be exercised at higher levels? 3) The question of scope: Fisheries management comprises a whole variety of tasks. Are some tasks better handled decentralized than centralized, or vice versa? In answering these questions the principle of subsidiarity is useful i.e. decisions affecting people's lives should be made at the lowest possible level where competencies exist.

ISSUES FOR TRANSBOUNDARY MANAGEMENT

There are the following issues/themes for transboundary management: transboundary/migratory stocks (this is mainly related to protection of key habitats, such as deep pools, i.e. deep areas within the river channel, which act a dry season refuge for a number of important fish species; for some species, deep pools may also be spawning habitats; deep pools are local habitats with transboundary significance); other transboundary concerns (e.g. fish quality); transboundary experiences: e.g. how to remedy a complete breakdown of communication between government agencies and users in many of the LMB countries? How to increase compliance with fisheries legislation, etc.?

ORGANIZATIONAL FRAMEWORK FOR INTERNATIONAL/ TRANSBOUNDARY CO-MANAGEMENT

Organisation/representation of stakeholders: On local level – local user groups and local units of government fisheries line agencies; on national level – national user organizations, linked to local user groups in a "federated", nested system and central units of concerned line agencies; on transboundary level – basin organizations (such as the MRC in the Mekong with its Public Participation Strategy), the Technical Advisory Body (TAB, see below) and similar regional organizations may be instrumental in facilitating management cooperation between users and respective government units on all levels.

So far examples of successful user organizations at national level, and in particular in inland fisheries, are few. There is an interesting model now available with fisher organizations in Viet Nam and to strengthen these initiatives, including their links with local organizations, could be an important task of the MRC Fisheries Programme.

TOWARDS TRANSBOUNDARY MANAGEMENT IN THE LMB

Traditional systems and forms of management exist in northern Thailand and Laos: through the ritual of *liang luang* at the beginning of the yearly fishing season for Mekong Giant Catfish, local fishers seek to obtain permission from river spirits to catch the fish and for blessings of their boats. In Southern Lao PDR, fishermen from more than 60 villages have established and enforce no-fishing zones at key fish habitats, out of which are deep pools. On 1 May 2002 representatives of fishing communities from Cambodia, Lao PDR and Viet Nam met in Phnom Penh, to convene the 1st Regional Conference of Ministers of the Mekong Basin. A major conclusion of the meeting was to create networks across boundaries of the Mekong region in order to promote sustainable use and conservation of fisheries and natural resources.

In 2000, a Technical Advisory Body was established by representatives of ministries concerned with fisheries and aquatic resource management, facilitating transboundary interest to be studied or acted upon. The TAB has identified topics of transboundary interest so far have been studies of deep

pools and giant Mekong fish species, as well as the implementation of a series of regional training course in Co-management of Inland Fisheries.

CONCLUSIONS

Some conclusions are:

- i. Co-management is not the WHAT, but the HOW of management;
- ii. In setting up co-management, attention should be given to informal as well as formal structures and processes, in order to keep these systems flexible and adaptive; prescriptions for co-management have been too rigid, particularly when compared to what actually happens on the ground, where imperfect, yet dynamic forms flourish;
- iii. Co-management is mainly capacity building and/or capacity building for communication!
- iv. Co-management needs to be scaled-up: problems and solutions are experienced locally, but shared nationally and regionally
- v. For MRC/FIP this means: An important task is to strengthen “stakeholders” at local and national levels to enable meaningful participation in international/transboundary co-operation.

REFERENCES

- Jentoft, S. (1989): “Fisheries co-management”, *Marine Policy*, Vol. 13, pp. 137-154.
- McCay, B. J. (1993): “Management regimes”. Beijer International Institute of Ecological Economics, Stockholm.
- Sen, S. & Raakjaer-Nielsen, J. (1996): “Fisheries co-management: a comparative analysis”, *Marine Policy*, Vol.20, No.5, pp.405-418.

APPENDIX 7: INFORMATION ASPECTS OF COMMUNITY PARTICIPATION IN FISHERIES

By J. Purvis, F. Sobo

1 ABSTRACT

This paper tries to address a number of aspects of the role, and specifically the information needs in a developing system of collaborative management, as we see on Lake Victoria today. In dealing with a topic as broad as "information" there is a danger of being too specific (and not recognizing the context of the meso and micro environment) and also a danger being too broad that there is little substance or subject matter for debate or discussion. We have to try to address both dangers. We recognize that the paper and the process here is not starting with a blank sheet – that there is a lot of work completed, lots ongoing and we are very sure that plenty of activities planned. Through this paper we hope to raise some issue for discussion and to feed into your planning sessions in the coming days. Section 3 outlines a representation of the changes that may be involved when moving from a conventional approach of fisheries management to a system of collaborative management. It also looks at how changes in the external or macro and meso environment (apparently very far away from the community) have to be considered. Section 4 discusses the implications of these changes particularly as they relate to the way we deal with information. A tool is used for further clarification of the role and the needs of information under a collaborative management system – focussing on some of the issues from Lake Victoria. Lastly the paper elaborates a system of community resource monitoring developed and used in Namibia, which helps to illustrate the points made.

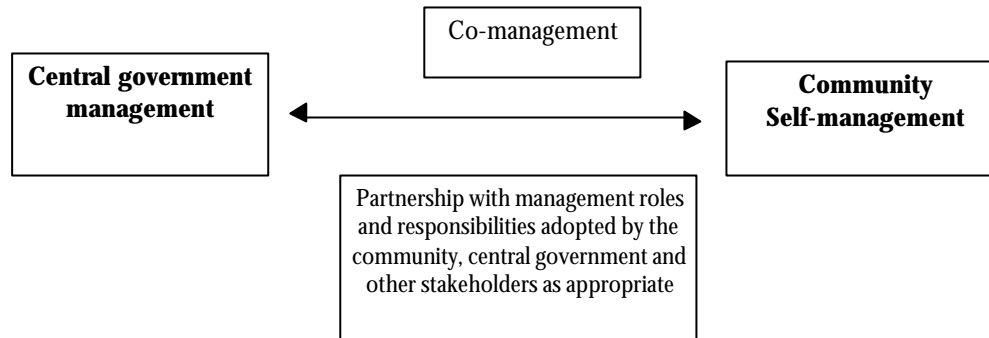
2 INTRODUCTION

The active participation of resource users in fisheries management is now widely recognised as a requirement for sustainable fisheries management. The degree of participation is often determined by a variety of local conditions and systems, and may evolve over time as necessary.

The handing over of some resource management functions which were previously vested in central government is variably called: collaborative management, co-management; decentralised management, community-based management and may be applied to wildlife, fisheries, forestry water supply and any other aspect of resource use.

This shift from central (command and control) style of management to collaborative (some form of co-operative management between state and resource users/stakeholders) will require a restructuring of roles and responsibilities and often a fundamental change is needed in the way that the business of resource management is conducted. This change will cover all aspects including information: the collection, use, management, reporting, communication and dissemination of information will have to be restructured and reconsidered under a new management system. As the institutional changes occur from command-and-control to collaborative, the role and needs for information will also change. Information and data (and indeed knowledge) are fundamental to all stages of resource management from policy development, through fund allocation to law enforcement and the decisions of individual fishing units as to how to fish. There have been efforts in the past to enable the effective participation of resource users in their management by adoption of methods such as participatory techniques, extensive consultation etc – but many of these have failed to deliver – and it is now understood that for

resource users to be involved in management there have to be changes in governance systems and institutional structures. Of course along with these changes will be changes in how people acquire, use and manage information.



(Adapted from Hoggarth et al, 2000)

It should be stressed at this stage that the definition of information is much broader than may usually be thought the case with fisheries management. As we will see in the presentation, the information needs and the nature of the information may be quite different than was traditionally the case under the conventional system of fishery management.

3 THE SHIFT FROM CONVENTIONAL FISHERIES MANAGEMENT TO COLLABORATIVE SYSTEMS

3.1 Stakeholder Structure

Figure 13 is a diagrammatic representation of the changes in the institutional relationships, and consequently the information flows, as the progression from central to local management is made. As was touched upon earlier, the push for this move was brought about partly by the failure of the conventional systems of fisheries management, national changes in the approach to decentralisation and, supported by a number of, what we might call, “macro” forces.

I just want to spend five minutes explaining the diagram and some of the changes in the stakeholders and their uses of information – before I try to draw some implications of this change for specific information issues.

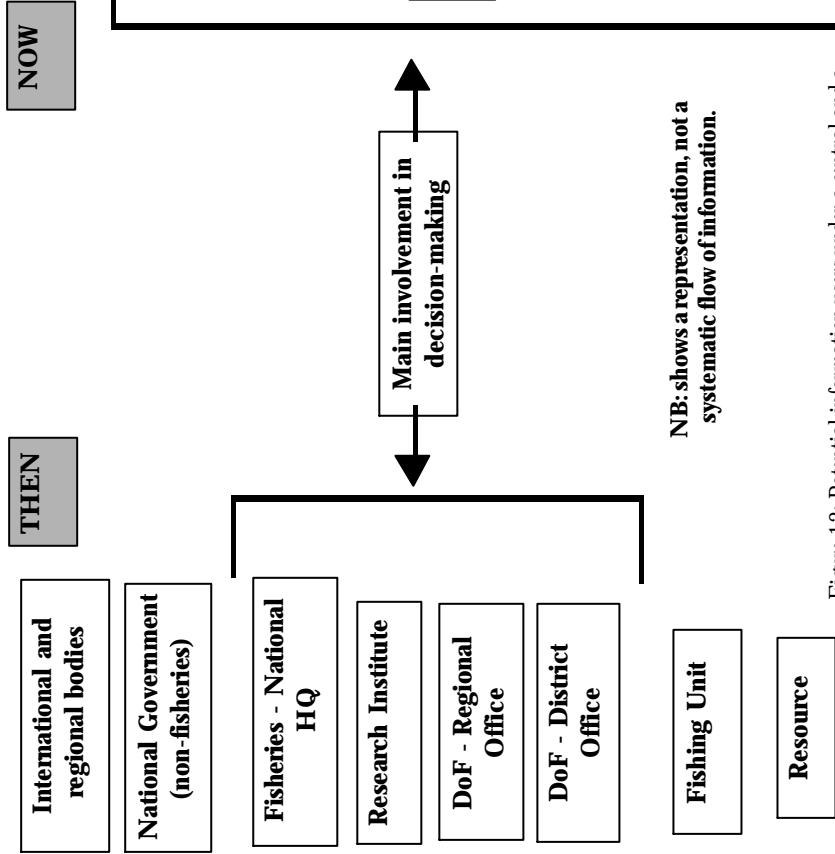
3.2 Implications of the shift for information aspects

What are the key points coming from the previous diagram and the conditions of decentralised management (in relation to information) which should be noted here and we can develop further:

Numbers of stakeholder groups to be effectively involved in fisheries management decision-making

The main decision-making power in this system in the past was the government offices and the research institutes conducting research. They would collect the data, analyse and make the decisions – then set up the systems to enforce these decisions and rules (if at all). A number of the management functions previously the domain of the research institutes or government officers are now passing to different stakeholders. Now a range of players in the decision-making process. Although decentralised it does not mean that fisheries are being managed in a vacuum – are still a lot of interested parties out there. Must have different types of information that is usable and demanded at the different levels.

Representation of conventional fishery management system (command-and-control management)



Representation of decentralised fishery management system (Co-management)

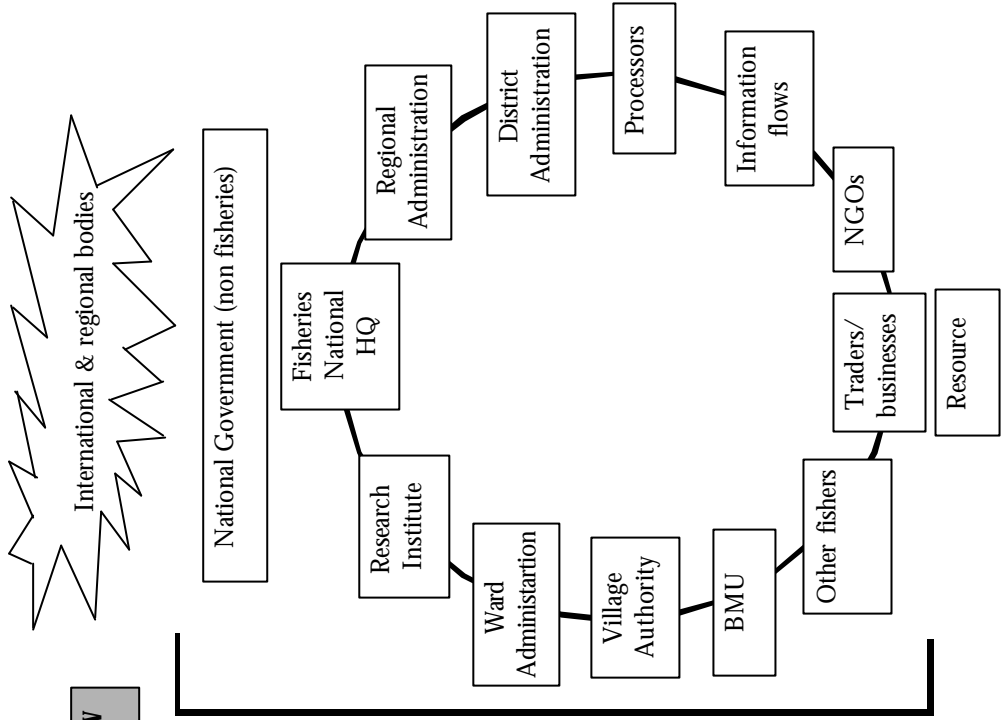


Figure 13: Potential information users under a central and a co-management approach to fisheries management.

Process versus product

Partly as a result of lack of resources and lack of stakeholder involvement, the command-and-control system largely failed. Even when some of the responsibilities for enforcement fell to local groups, because the regulations had not been developed with local needs

approach to management. People at all levels have to change their behaviour, way of doing things – as this change occurs there will be new roles for information. If we are agreed that information must support the decision-makers to reach their decisions, then the larger number of decision-makers makes it likely that different information is needed and certainly in forms that are accessible to the user. Requires a broadening of data and information provision. The decision-makers have changed, the managers have changed – need to make sure that the “new” managers have the information they need to make their decisions and monitor the impact of these decisions.

Need for transparency

In the past, much of the research and analysis around fisheries was undertaken behind closed doors, with little explanation or involvement of the users. There has to be increased transparency in the collection of information, the use of it and the dissemination of it – as many more players have a direct involvement and stake in the management of fisheries. Must involve people more in the process of data collection – not just collect it as usual and then worry about ways to feedback the information to communities – but design the whole process with local learning and capacity building in mind.

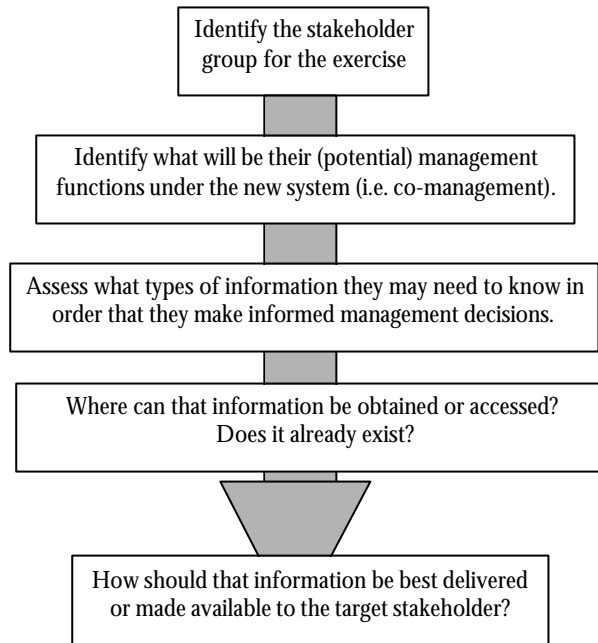
Communication channels must be improved

In the past the information just went up and then something else came down – the channels were well known and institutionalised. Under a developing decentralised system many of the communication channels will be new and require some greasing. Links from micro to macro scale in both directions are very important and may not be familiar to many groups.

Partnerships

The development of new partnerships and working arrangements will have to come in this process. No longer simply the ruler and the ruled - but now much more complex.

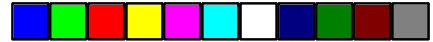
4 A TOOL FOR ANALYyoc- the channelsF 0 -30 TD /F5 9.75 Tf -0ly groups.



(1) Stakeholder group	(2) Possible management function <i>(objective)</i>	(3) What information do they need for decision-making? <i>(indicator to see how far the objective is achieved)</i>	(4) Where can they	(5)
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Figure 15: Tool for assessment of information needs and delivery systems in a co-management structure



5 A COMMUNITY-BASED RESOURCE/ EVENT MONITORING SYSTEM

5.1 Event book monitoring system - Namibia

(Acknowledge: Ministry of Environment and Tourism, Namibia; Conservancy Organisations; WWF/ USAID LIFE Program and the Ministry of Fisheries and Marine Resources, Namibia.)

- i. originally developed for wildlife monitoring;
- ii. after 2-3 years in the making, is now used widely in Namibia in the community-based natural resource management areas or Conservancies. In these areas the management of the wildlife resource was passed largely from central government to community organisations (the Conservancy Committees).

The system:

Using the diagrams that follow explain that the system operates essentially on three levels:

Level 1: community rangers – data collectors – yellow level

Community Rangers, Game Guards, Fish Guards, Environmental Shepherds conduct regular patrols and record individual events as they are seen or reported to them. This information is recorded on the yellow sheets held in a file belonging to that guard.

Level 2: supervisor – monthly reporting charts/maps – blue level

This “blue level” is undertaken by the supervisor with the data collectors. The supervisor collates the records from the yellow sheets onto the blue sheets. Done in a very simple way that should reduce the chances of errors whilst allowing the collectors and users to do it themselves. Records (or events) are recorded by shading in blocks on a chart. See example below:

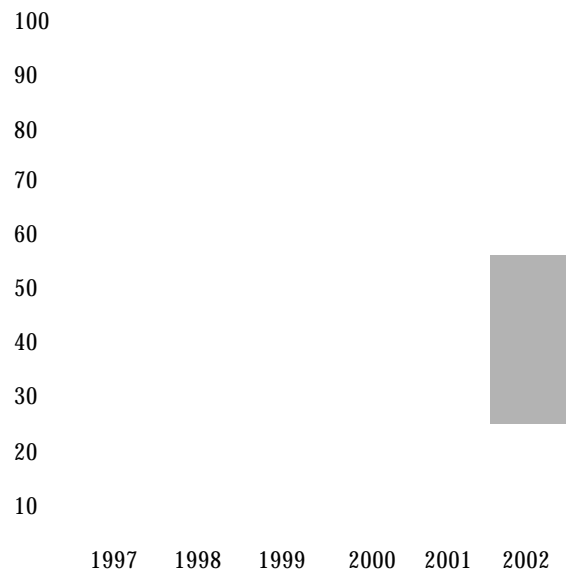
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		Jan	Feb	Mar	April	May

Figure 16: Illustration of the “blue” level summary sheet (monthly reporting chart) for illegal fishing incidents in one managed/patrolled area

Level 3: to the elected committee – long run monitoring/annual reporting – red level

The so-called “red level” is where the information is collated by the Committee (elected representatives) and puts the information from the red level into either summary reports for

particular months in a certain area, or can be used to show changes between the years. The information collated in this way can be the basis for identifying long-term trends, and also for reporting to government and donors, support agencies.



reports can go to the local/national authorities as an annual report

Figure 17: Illustration of the “red” level summary sheet (long-term reporting chart) for

5.2 Good practice components of the system

Now whether you feel that this system has anything to offer your situation I do not know, but it illustrates a number of points of good practice from the earlier discussions:

- i. Provides appropriate information for decision-making at different levels. Was designed with communities for their monitoring but reports and provides information to the other decision-making levels.
- ii. Includes resource users in the collection of information which can then be used for decision-making.
- iii. Is not extractive – with the raw and summary sheets remaining in the local Conservancy Office.
- iv. Following 2 – 3 years of quite intensive and wide-ranging support the system appears to be sustainable.
- v. Is simple and can be expanded to other sectors if necessary – is colour based and involves a lot of pictorials, so good for local use and understanding.
- vi. Was designed in response to indicators that the communities felt were important to monitor.

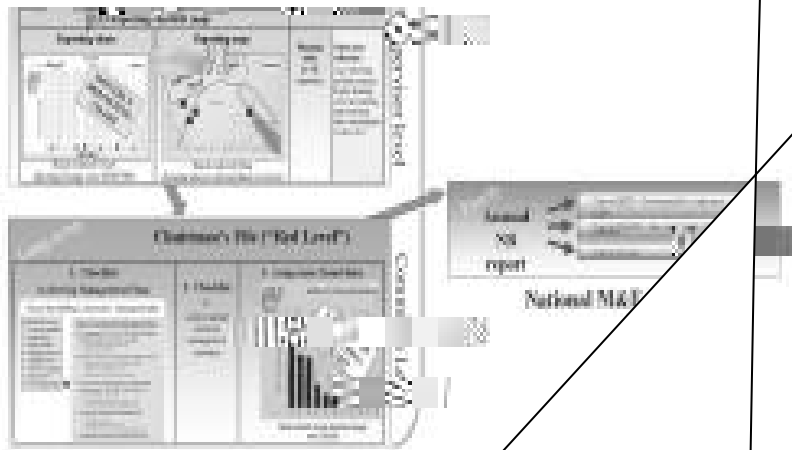


Figure 18: The three levels

6 SUMMARY AND CONCLUSION

In this paper we have tried to show how to meet the needs of decentralised level there are changes also

has to adapt at the macro quiriied tenactro

In summary:

- i. More than ever before information must only be collected with a specific use, target audience in mind and a strategy as to how the information will be used, and by whom. The tool may assist to show where the information fits and what demand the information (or data) will satisfy. Of course this should always have been the case with any research, but is more true now. Must link the functions of management, the objectives of management and the information, which is necessary to support the achievements of objectives. Must focus increasingly on the design and development of systems, which are adapted to the needs of the decision-maker, which in a co-management system includes a variety of users. Conventional fisheries data and research still has a role to play, but should not be the focus at the expense of other activities.
- ii. For information services as with any other service provided – the service delivery should be demand driven. As capacity develops in the various stakeholder groups, and the needs

APPENDIX 8: LEGAL ASPECTS OF CO-MANAGEMENT IN FISHERIES

By H. Teigene, B. Kuemlangan

ABSTRACT This paper examines the legal aspects of co-management and role of law (legislation) in fisheries. Co-management, like other forms of participatory or cooperative management in fisheries, implies the sharing of powers, rights and responsibilities and with it, legal implications. As such the legal environment within which co-management will function will need to be examined to determine whether it supports or will need necessary enhancement to support the implementation of co-management. Such examination should preferably take place before or when co-management arrangements are being considered for utilisation or trial. The question as to whether co-management is legally sustainable must be asked of the whole legal framework of the state – from fundamental

legislation may be necessary to implement co-management. There is no doubt as to how co-management processes of

management

ill

OVERVIEW OF LEGAL ISSUES AND BROAD LEGISLATIVE CONSIDERATIONS FOR CO-MANAGEMENT

The significance of considering legal aspects of cooperative fisheries management

The legal implications raised by implementation of community-based natural resource management (CBNRM) including CBFM or co-management requires that the legal environment within which CBNRM functions are examined. This should determine whether the national legal environment supports or will need enhancement to implement CBNRM. It is best that such examination take place before or when CBNRM is being considered for utilisation or trial (Lindsay 2001, Kuemlangan and Teigene 2003).⁸ The need to have prior examination of legal issues is based on findings that:

- i. effective implementation of co-management systems depends on supporting legislative framework (Berkes 1994, Ruddle 1994);
- ii. co-management systems are successful in jurisdictions like Philippines and Japan where there exists a favourable legal environment (Alcala and Vande Vusse 1994, Ruddle 1994). In respect of traditional community-based marine resource management systems, the functional systems recorded exist in jurisdictions that accord them legal recognition and are protected by government (Karlshen 2001, Pomeroy et al 2001, Ruddle 1998).
- iii. it can pre-empt and avoid legal challenges which could have adverse consequences.⁹

The fundamental legal basis for co-management

A principal consideration in the context of ascertaining the legal basis for co-management is that the fundamental law, (e.g. the constitution or organic law) must allow the establishment of participatory management. If the fundamental law stipulates that certain prerequisites of CBNRM are not possible, then co-management in its fullest sense cannot be established legally. The question of constitutionality relates to certain aspects of CBNRM, which include, what number of rights such as access or powers and responsibilities with respect to management (i.e. level of participation) of the fish resources should be accorded to the designated group or local community unit within the participatory management regime.

The fundamental legal basis and decentralization

Co-management could be effected through a decentralization framework. If this is desired, decentralization should be allowed by the fundamental laws. In addition, where decentralization laws exist, it should be ascertained as to how co-management is facilitated through decentralisation institutions such as regional, provincial or local governments/councils.

The fundamental legal basis and allocation of ownership or other substantial rights

If the system of co-management envisages allocation of property or use rights, then it should be ascertained whether fundamental laws or legislation specific to natural resource development allow for the allocation of such rights. This issue is often addressed directly or indirectly in national Constitutions. Where a Constitution neither states explicitly the validity of allocating

⁸ See also The World Bank. 1999. Report from the International CBNRM Workshop, Washington D.C., 10-14 May 1998. URL: <http://www.worldbank.org/wbi/conatrem/> which discusses considerations for establishing community based natural resource management (CBNRM). It underscores the legalising of institutions a basic requirement for establishing CBNRM.

⁹ For example, in Iceland the ITQ based fisheries management system introduced by the 1984 Fisheries Act was found to be unconstitutional. This may be an extreme example and one which relates more to the issue of individual transferable quotas. However, it has a valuable lesson for policy and decision makers that innovative approaches to management including rights based management are reviewed from all perspectives and that they are found to be legally functional in the national context before they are comprehensively applied.

property or use rights, nor prohibits such allocation, it can be safely deduced that property and use

iv. rules for interaction with other stakeholders;

Plans, trials and the results of the trials in the application of co-management are site-specific. Given this, any law that is enacted for establishing co-management should preferably be a “framework” law. The framework law must primarily enable the use of co-management through its provisions that ensure security, exclusivity and permanence for any rights that may be allocated. However, the legal framework should also, as a minimum, ensure that powers are vested or entities are designated to invoke co-management when the need arises. The provisions of the framework law that provide for these must allow:

- i. the designation of groups or community unit that will be involved in co-management and that such groups may be allocated rights and responsibilities in fishing and fisheries management;
- ii. choices in the manner in which designation of groups or community units will be effected;
- iii. choice in demarcation of areas for co-management; and,
- iv. choices in the institutional or organizational framework for co-management.

The review of the fisheries legislation of the Kingdom of Tonga in 2000 incorporated a framework for co-management. The legislative review and drafting process, took into account inter alia, the following facts and considerations:

- i. The Constitution was silent on the issue CBFM but it did not expressly prohibit the establishment or implementation of co-management.
- ii. Lack or absence of authoritative literature or documentation on customary marine tenure (CMT). These were a study done on traditional shell collection practices, which was of limited relevance only to guide the potential use of CMT in fisheries management.
- iii. Lack of comprehensive programme or strategies for implementation of co-management.
- iv. One trial project only on co-management had been carried out in a region of Tonga implemented by the government authorities responsible for environment.
- v. Strong support for co-management was noted but there were no clear instructions on the institutional or operational aspects of for implementing co-management. There was also no clear understanding of what the co-management concept was in the Tongan context.
- vi. No capacity and resources to initiate and manage co-management within the Ministry of Fisheries
- vii. Existing local level governments in the form of Town and District Officers (who were an extension of central authority) governed by the Town Officers Act and the District Officers Act respectively. Town and District Officers had powers to make by laws at town and district level. The issue was whether to formulate a new institutional arrangement or use/involve the existing local level institutions.

The legislative provisions in the principal Act (the Fisheries Management Act 2002) merely vest powers to establish co-management and facilitate future detailed regulation. The provisions concerning co-management are as follows:

- i. section 4 (l) - Principle of practicable, broad and accountable participation (conducive to co-management to be taken into account in the exercise of management powers under the Fisheries Management Act
- ii. section 7 - consultation of “coastal communities” in preparation and review of fisheries management plans
- iii. section 13 – creation of special management areas (SMA). An SMA of part thereof can be allocated to be under the management responsibility of coastal communities.
- iv. section 14 - designation of coastal communities (“coastal community” is not defined so as to allow use of existing community organizations, inclusion of non coastal communities or a change to prevailing meaning of “coastal community”). Consultation is also required

9.75 TD -0.lity of coastal commu

Above all, the legal framework for co-management must be practical and flexible in effect to respond to changing needs and priorities. Ultimately, it is a question of balance. Attaining that required balance however is difficult and depends largely on local circumstances.¹³

REFERENCES

- Alkala A.C. and Vande Vusse F.J. (1994): In R. S. Pomeroy. (Ed.). Proceedings of the Workshop on Community Management and Common Property of Coastal Fisheries and Upland Resources in Asia and the Pacific: Concepts, Methods and Experiences. Manila: ICLARM, 12-19.
- Berkes, F. (1994): 'Property rights and coastal fisheries'. In R. S. Pomeroy. (Ed.). Proceedings of the Workshop on Community Management and Common Property of Coastal Fisheries and Upland Resources in Asia and the Pacific: Concepts, Methods and Experiences. Manila: ICLARM, 51-62.
- FAO (2002): Law and sustainable development since Rio – Legal issues and trends in agriculture and natural resources management, FAO Legislative Study 73, Rome
- Karlsen G. R. (2001): Can formalisation help? The introduction of fisheries co-management in the inshore fisheries of Dingle, Co. Kerry, Ireland *In Marine Policy* 25 (2001) 83-89.
- Kuemlangan B. and Teigene H. (2003): An overview of legal issues and broad legislative considerations for community based fisheries management, (unpublished paper submitted and presented at the Second Large River Symposium (LARS2), 11-14 February 2003, Phnom Penh, Cambodia)
- ~~Leria C. and Van Houtte A. (2000): Rights-based fisheries: A legal overview, p 263-300 in Current fisheries issues and the Food and Agriculture Organization of the United Nations, a publication in association with the Center for Oceans Law and Policy, University of Virginia School of Law.~~
- Lindsay J. (1998): Designing Legal Space: Law as an enabling tool in community-based management, International Workshop on Community-Based Natural Resource Management, Washington D.C., May 10-14, 1998.
- Pomeroy R. S., Katon B. M. and Harkes I. (2001): Conditions affecting the success of fisheries co-management: lessons from Asia *In Marine Policy* 25 (2001) 197-208.
- Ruddle K. (1994): Changing the focus of coastal fisheries management, In R. S. Pomeroy. (Ed.). Proceedings of the Workshop on Community Management and Common Property of Coastal Fisheries and Upland Resources in Asia and the Pacific: Concepts, Methods and Experiences. Manila: ICLARM, 63-86.
- Ruddle K. (1998): The context of policy design for existing community-based fisheries management systems in the Pacific Islands, p. 105 – 126 *In Ocean & Coastal Management Special Issues* 40 Numbers 2-3 1998, A modern role for traditional coastal marine resources management systems in the Pacific Islands.
- Taua A. (1999): Community-based Fisheries management in Samoa, FishRights99 Conference, Fremantle, Australia, 1999
- The World Bank 1999, Report from the International CBNRM Workshop, Washington D.C., 10-14 May 1998. URL: <http://www.worldbank.org/wbi/conatrem/>

APPENDIX 9: TRANSACTION COSTS AND RESOURCE RENT OF FISHERIES CO-MANAGEMENT

By K. Jahan

Introduction

Fisheries co-management as an alternative to centralized management system is often suggested as a solution to the problems of fisheries resource use conflicts and overexploitation. It is also said in favor of co-management that this system reduces the huge costs of managing the common property resources. The transaction costs and resource rent in the case of the oxbow lake fisheries of Bangladesh is estimated to examine the potentials of a new institution like co-management compared to the centralized management system.

Table 7. Physical, Technical and Biological Attributes of the Oxbow Lakes

INDICATOR	PHYSICAL, TECHNICAL AND BIOLOGICAL ATTRIBUTES
Boundaries	Limited access to target licensed fishers group
Level of Technology	Semi intensive polyculture in Indian and Chinese carp only stocking, no supplementary feeding and no application of fertilizer for growth food in lake Harvesting round year, more intensive from November to June
Harvesting practices	Fish output used to be sent to "araths" i.e. wholesale point, It is usually sold to higher bidder in araths. When the bidders get prior information about the fishing they cometo lakeside in a large numbers. Auctions are held in presence of all
Market characteristics	Weed free moderate to good water depth and color
Status	

OXBOW LAKE CO-MANAGEMENT SYSTEM

*Figure 19: Production Relationships, Rights Allocation and Distribution of
Benefit under Centralized Fisheries Management*

BANGLADESH INLAND FISHERIES

Bangladesh possesses a wide range of water bodies such as marches, reservoirs, lakes, natural depressions, rivers and estuaries that offer an extensive inland fishery which occupy an area of nearly 4.5 million ha (BBS, 2002). Fisheries account for about 3.27 percent of country's GDP and contributes 60 percent of the nations animal protein intake. It provides full time employment to 1.2 million people and part time employment for some 11 million people. Inland fisheries of Bangladesh rank fourth in the world after China, India and former Soviet Union.

FISHERIES MANAGEMENT IN BANGLADESH

Two alternative fishing policies are practiced in Bangladesh to manage the inland fisheries: (1) Leasing and (2) Licensing. Management systems developed based on the leasing policy: (1) Private Management (2) Cooperative management (3) Government management. New Fisheries Management Policy (NFMP) was introduced in 1986. Licensing policy is implemented under the NFMP. The management system developed under the system is: (1) Co-management, and (2) Centralized management.

OXBOW LAKES

Oxbow lakes are formed as sections of meandering rivers, which is connected with the river by inlets and outlets. By screening the inlets and outlets, an oxbow lake can be converted into a culture-based fishery. The size of oxbow lakes varies from 10 ha to 500 ha. The number of Villages on the shores of a lake ranges from one to seven villages. The important characteristics of the common property resource like non-excludability and subtractability is present in oxbow lakes.

Oxbow Lakes Centralised Management

The oxbow lake Project-I (OLP-I), Partly financed by World Bank (IDA) was initiated in 1979-80 and finalized in 1985-86. The project was an experiment of the government management, which was managed by the DoF staffs. This was taken as an alternative management approach after the implementation of NFMP. The relationship between different agents in this management is shown in Figure 19.

The oxbow lake co-management Project-II (OLPII) started operation in 1991, which was designed in 1988 and finalized in 1997. It was implemented by Department of Fisheries (DOF) and funded by IFAD with technical assistance grant from DANIDA. A NGO, BRAC participate to mobilize the fishers. The relationship between different agents in this system is shown in Figure 20.

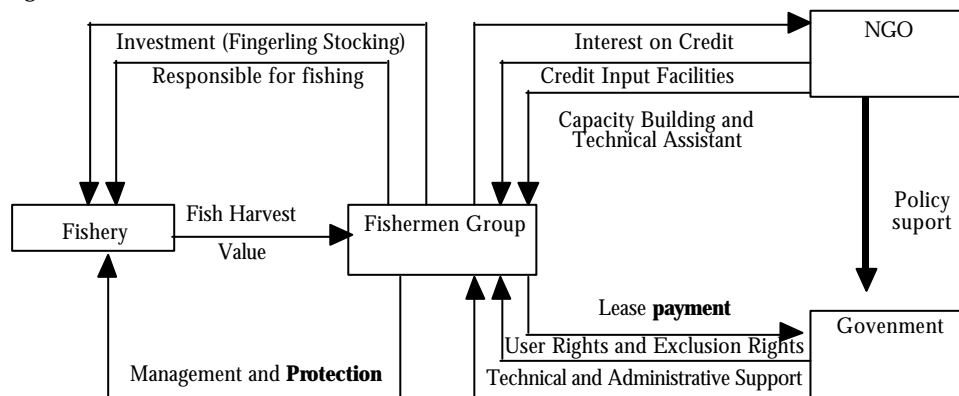


Figure 20: Production Relationships, Rights Allocation and Distribution of Benefit Under Fisheries Co-management

Issues in Co-management

It is argued in favor of co-management that the co-management system shifts the costs of managing the fisheries resource from the central to fishermen groups. A co-management approach at the initial stage takes higher costs and time but once the community become self sufficient to manage the resources this costs declines. The running costs or recurrent costs for managing the resources are lower and resource rent over transaction costs is higher in the co-management system. In this pioneering study, a co-management system is evaluated on these three aspects and compared to a centralized management system.

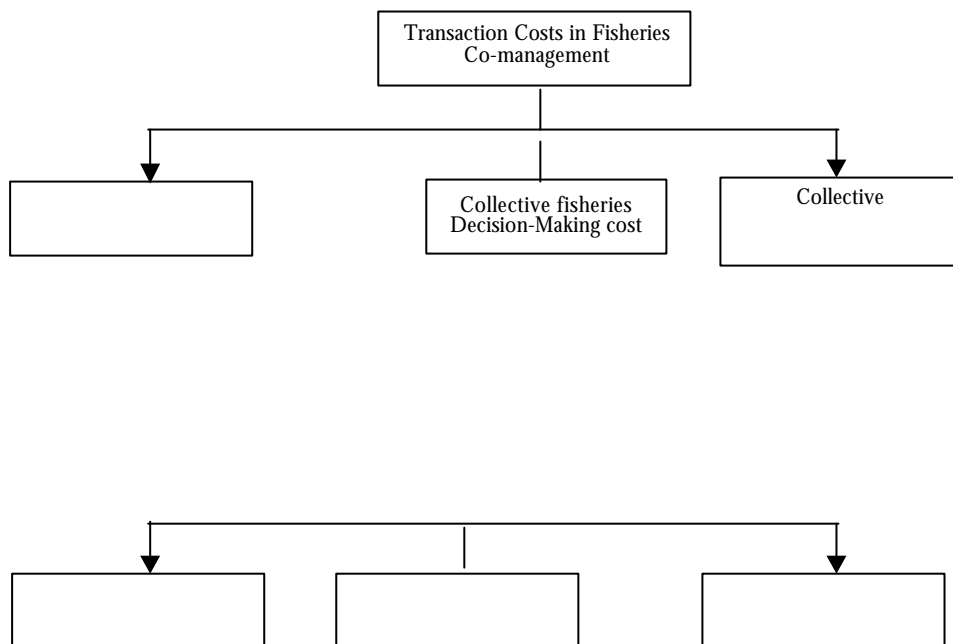
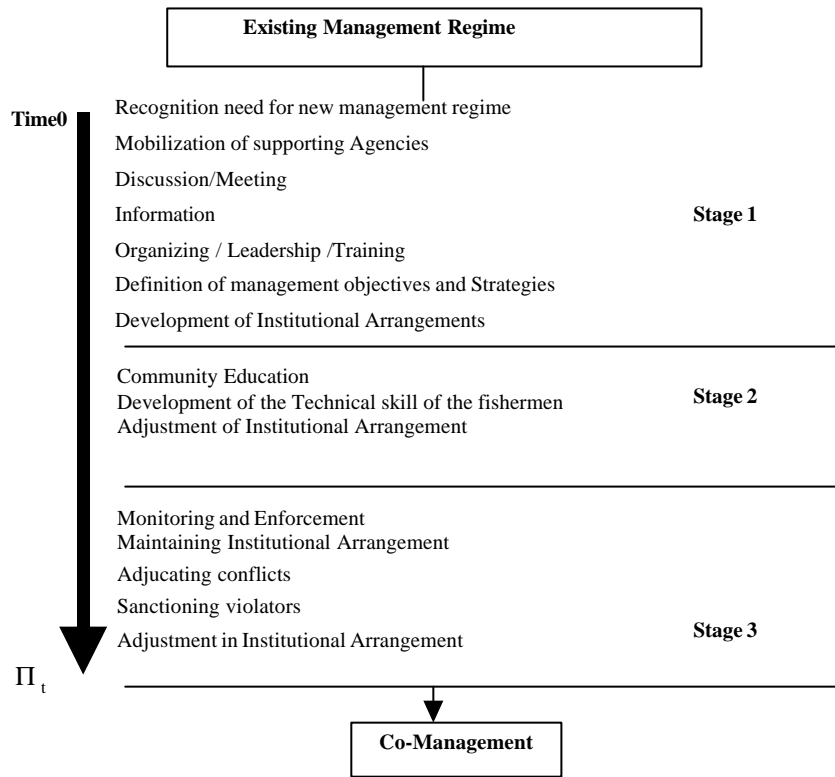


Figure 21: The schematic flow diagram of the transaction costs in fisheries Co-management (Adapted from Abdullah et al., 1998)

Transaction costs in fisheries co-management

Transaction cost economics recognizes that transactions do not occur in a frictionless economic environment. Coase (1937) proposed that if given choice individuals would choose the set of institutions or contracts that will offer the lowest transaction costs. A number of useful definitions of transaction costs are available in the literature such as Williamson (1973, 1975, 1981), Randall (1972), Dahlman (1979), North (1990), Davis (1986), Barzel (1989) and Cheung(1969).



Transaction costs is defined as the costs involved in collecting the information, coordinating among the various agents/stakeholders and enforcing and monitoring the rules and regulations required for developing and running a governance institution. Using generic of the Williamson transaction cost economics, transaction costs in fisheries co-management can be broadly categorized into three major cost items: 1) information costs 2) collective fisheries decision-making costs and 3) collective operational costs. The break down of these costs is shown in Figure 21.

Resource Rent

Rent is defined as the excess of revenue over the opportunity cost of labor and capital. Fishery

**DEVELOPMENT STAGES OF CO-MANAGEMENT AND CENTRALISED
MANAGEMENT SYSTEMS AT OXBOW LAKES**

CO-MANAGEMENT SYSTEM:

Stage I - 1988-89 to 1993-94 Stage II- 1993-94 to 1996-97 Stage III- 1997-98

CENTRALIZED MANAGEMENT SYSTEM:

Stage I - 1979-80 to 1985-86 Stage II & III- 1993-94 to 1997-98

DATA COLLECTION

Table 9. Costs incurred (tk./ha/year) in different for establishing a co-management institution

ACTIVITY	Stage I (1988/89 to 1993/94)	Stage II (1994/95 to 1996/97)	Stage III (1997/98)
Land acquisition	106		
Office rent	487	541	
Technical Assistance	3143	3816	
NGO operating costs	2156	3861	
DANIDA operating costs	382	685	
Training 97	1070	876	
Salary of staff	1098	1940	
* Management costs for fishers	2645	2855	2938
Transaction costs	10314	14769	3814
Resource rent	2737	14586	20681
Resource rent net of transaction costs	-7537	-183	16867

Source: Published statistics (DoF, DANIDA and BRAC) 1997/97, survey data 1997/98

Note: Cost indifferent stages is adjusted with 1996/97 prices, * Collected from survey data and published statistics.

Table 10. Costs incurred (Tk./ha/year) at different stages for establishing the centralized management institution

ACTIVITY	Stage I	Stage II	Stage II
Land acquisition	406		
Office rent	134		
Technical assistant	6465		
Lake investigation	150		
Training	444	4014	4509
Salary of staff	2301	174	198
* Management costs for fishery	140	4188	4707
Transaction costs	10040	6357	7825
Resource rent	1508		
Resource rent net of transaction costs	-8532	2169	3118

Source: Published statistics (DoF, DANIDA and BRAC) 1997/97, survey data 1997/98

Note: Cost indifferent stages is adjusted with 1996/97 prices, * Collected from survey data and published statistics.

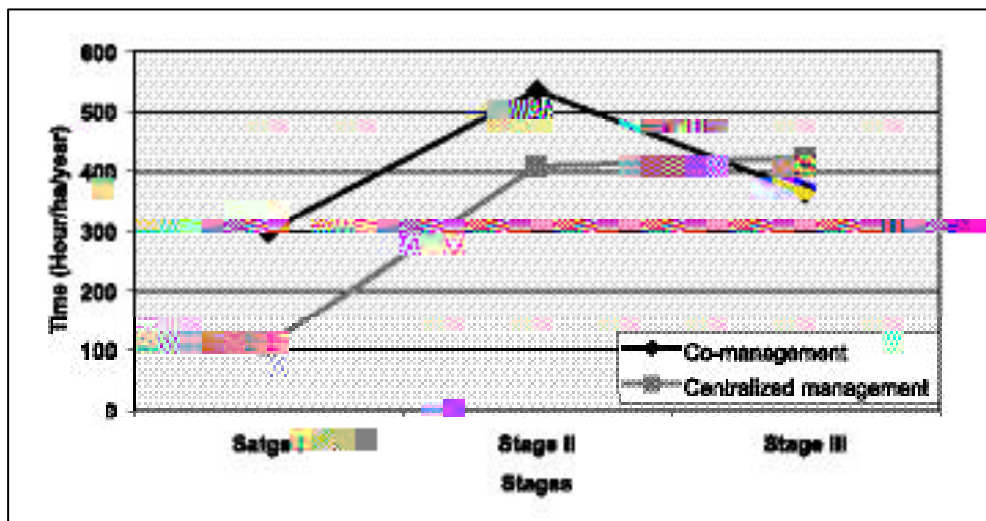


Figure 23: Time spent on different stages of centralized and Co-management system

Table 11. Transaction costs and resource rent (Tk/ha) in Co-management lakes (525 ha) over the year

ACTIVITY	93/94	94/95	95/96	96/97	97/98
NGO operating cost	3169	5213	4054	2317	876
Guarding	434	505	383	532	603
Conveyance	138	1562	132	107	235
Monthly meeting costs	16	75	29	39	52
Entertainment	11	0	33	47	133
Fishers allowance	76	23	0	73	16
G. T. fund	0	0	0	0	2
Court cases	0	43	11	425	303
* Pockets costs for fishers	23	52	55	39	35
** Opportunity costs of fishers for participating in management	345	629	627	578	626
Activities					
Others	1601	938	852	732	932
Transaction costs	5814	9039	6221	4889	3814
Resource rent	14587	14407	9086	20266	20681
Ratio of rents transaction costs	2.4	1.5	1.4	4.0	5.2

Source: Published statistics (DoF, DANIDA and BRAC) 1997/97, survey data 1997/98 Note: Cost indifferent stages is adjusted with 1996/97 prices, * Collected from survey data
 ** Collected from survey data and published statistics

Table 12. Transaction costs and resource rent (Tk./ha/year) in centralized managed lakes (589 ha over the years)

ACTIVITY	93/94	94/95	95/96	96/97	97/98
Guarding	1679	1713	1788	1855	2120
Salary of staff	1683	1710	1565	1618	1770
Travelling allowance	180	184	164	161	180
Entertainment / festival bonus	202	215	194	188	211
* Pocket costs of fishers	9	9	9	9	10
** Opportunity costs for fishers for participating in management activities	165	165	165	167	188
Others	158	240	169	277	228
Transaction costs	4076	4237	4055	4275	4707
Resourcerent	7784	3119	6283	9669	7825
Ratio of rents transaction costs	1.9	0.7	1.5	2.3	1.7

Source: Published statistics (DoF, DANIDA and BRAC) 1997/97, * survey data 1997/98

** Collected from survey data and published statistics.

Note: Cost indifferent stages is adjusted with 1996/97 prices.

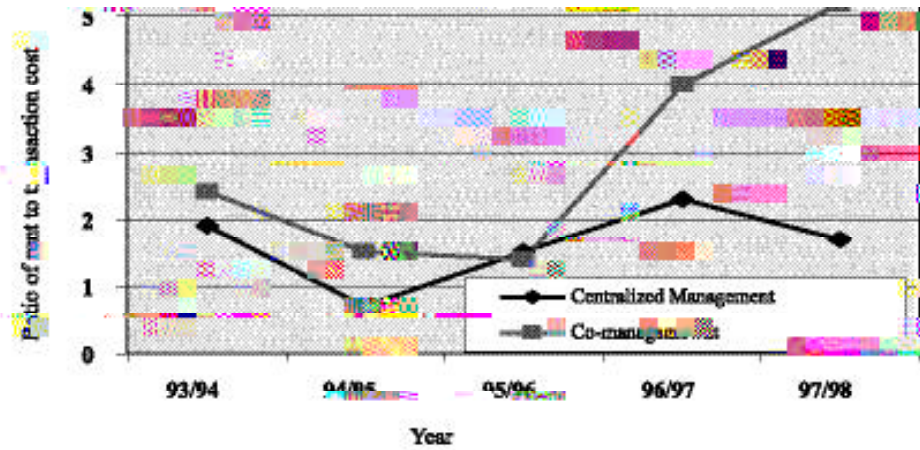


Figure 24: Ratio of rent to transaction costs over the years



CONCLUSION AND POLICY IMPLICATIONS

- i. process is that it motivated the fishers to adhere loyally to the regulations.
- ii. In co-management system there was a shift of costs from the government to the community.
- iii. Co-management system reduces the overall management costs and increases resource rent that provide support for the long-term sustainability of the fisheries co-management system.
- iv. Monitoring enforcement costs are the major transaction costs of managing fisheries at oxbow lakes. As these activities were undertaken by fishers, the transaction costs declined over time as community acceptance of rules and regulations increased the legitimacy of the rules and regulations governing the common property resource.
- v. From a policy perspective, the key advantage of stakeholders' participation in decision-making.

APPENDIX 10: COMMUNITY PARTICIPATION IN TANGA COASTAL ZONE CONSERVATION AND DEVELOPMENT PROGRAMME, TANZANIA

By E. Verheij, R. Hadji, K. Mvugaro, M. Dachi

1. Introduction

Tanga Coastal Zone Conservation and Development Programme started as a Collaborative Fisheries Management Project in Tanga Region, North Tanzania in June 1994. IUCN-EARO is managing the programme and is providing technical support. The programme is financially supported by DCI (Development Corporation Ireland). Under the programme 6 management areas were developed covering 150 km of coastline (1,600 km²), incl. reefs and mangroves.

2. Programme Objectives

- i. Conservation and sustainable use of the coastal resources through collaborative management,
- ii. Capacity building in support of collaborative coastal resource management,
- iii. Establishment of appropriate institutional arrangements,
- iv. Environmental education and awareness-raising,
- v. Promotion of alternative income generating activities.

3. Programme Phases

PHASE 1: JUN. 1994 TO JUN. 1997

Goal: *Sustainable use* of the coastal resources of the Tanga Region for the benefit of present and future generations of residents, through a series of integrated activities aimed at *conservation* and *collaborative management* of the coastal resources.

PHASE 2: JUL. 1997 TO DEC. 2000

Goal: *Sustainable use*

5. Process of formulation a new area management plan

- i. **Participatory resource mapping** and assessment by both the communities and the district government.
- ii. **Feed-back of the results** to the stakeholders in the villages using the management area to be.
- iii. **Delineation of the area** where a distinct group of villagers utilise the marine resources, hereby defining the management area.
- iv. As part of the development of the area management plan, **each village develops its village management plan** facilitated by the district staff and Village Government.
- v. Each village management plan **establishes a Village Environmental Management Committee** (VeMC), which is responsible for the implementation of the village plan.
- vi. **A Central Co-ordinating Committee (CCC)**, which comprises 1 to 3 representatives from each of the villages within the management area, is formed. This committee integrates the different village management plans into the Area Management Plan.
- vii. The CCC is responsible for the implementation of the Area Management Plan, including a bi-annual review of the Plan, which requires approval from all stakeholders.
- viii. The newly **drafted Area Management Plan is sent back to the Villages** for comments and/or approval. The plan might be sent back several times to the CCC until a unanimous approval of all the Villages is obtained.
- ix. The approved **Area Management Plan is sent to the District Council** for approval, after which, it is send to the **Director of Fisheries** for final approval.

6. Current situation

- i. Collaborative Area Management plans developed.
- ii. Covering about 150 km of coastline and includes all coastal districts of Tanga Region.
- iii. The communities closed 7 reefs for extractive practices and are comparable with "Marine Reserves".

7. Managing the management areas

Proper institutional arrangements in place:

- i. MoUs/agreements between main stakeholders.
- ii. Tanga Coastal Consultative Forum (TCCF) established and functional.
- iii. Proper links to Central Government.

Legally recognised institutions participating in management:

- i. Village environmental Management Committees (VeMCs).
- ii. Village Government.
- iii. Central Co-ordination Committees (CCCs).
- iv. District Government.
- v. Regional Administration.

8. Communities involvement in monitoring

- i. Reef health monitoring - Coral cover, Fish densities, Invertebrates.
- ii. Fish catch data collection - Composition, Total catch value.
- iii. Mangrove monitoring - Densities, Harvesting.
- iv. Socio-economic Monitoring.

- v. Regular calibration of monitors and review of monitoring programmes by scientific institutions, e.g. UDSM and IMS.
- vi. Constant capacity building / (re) training of monitors.
- vii. Joint effort between communities, Navy, and local government.
- viii. Training is provided when needed.
- ix. Regular monitoring of enforcement.
- x. Feed back of results from enforcement to Navy, communities and local government.

9. Impacts of community based conservation and management on reef health

9.1. Increased coral cover

APPENDIX 11: FISHERIES CO-MANAGEMENT IN MALAWI

By F. Njaya, S. Donda

Table 13: Issues on Lake Malombe, Lake Chiuta and Lake Chilwa in Malawi

Issue	Lake Malombe	Lake Chiuta	Lake Chilwa
Lake characteristics	About 390km ² Shallow (15m) Multi-species fishery Natural boundaries Dominated by <i>Oreochromis</i> and <i>Haplochrominespp</i> Artisanal fisheries	About 200km ² Shallow (>10m) Multi-species fishery Both natural and political boundaries Dominated by <i>Oreochromis</i> and <i>Burbusspp</i> Artisanal fisheries	About 2000Km ² Shallow (6 m) Multi-species fishery Both natural and political boundaries Dominated by <i>Oreochromis</i> , <i>Burbusspp</i> and <i>Clariasspp</i>
Historical background	Declining fish catches Failure of Centralised management system Change in Fisheries Management Policy Donor influence (ODA, GTZ, UNDP)	Exclusion of nkacha fishery from the lake Secure government support on management of the fishery Need for support and recognition of the community based management system	Recession – conserve inoculum for repopulation after recovery of the lake RAMSAR site
Objectives of co-management	Overall objective: <i>To improve livelihood of fishing communities</i> Community: To ensure recovery of fish stocks Government: To put in place a management system that would result into: Recovery of the fishery Sustainable exploitation at minimum operational costs	Overall objective: <i>To improve livelihood of fishing communities</i> Community To get government support and recognition Government To support regulations formulated by the partnership To support community initiated programme	Facilitate recovery of collapsed fishery due to recession Wise use of natural resources – RAMSAR Convention
Design and implementation	Feasibility study (Bell and Donda 1993) Development of management options – DoF goes for Co-management Consensus building workshops – community mobilisation Formation of CLU DoF facilitates the formation of BVCs Training of BVCs and CLU	Lake invaded by nkacha fishers (mid 1980s) Perceived declining catches – small sizes of fish landed in small quantities Water pollution Social conflicts Formation of pressure groups (early 1995) DoF reorganised pressure groups into BVCs Formation of Lake Association	Recession Mobilisation of communities into groups Formation of BVCs Local leaders and DoF being key partners Association composed of local leaders (Chiefs)
Institutional setup	Structure of co-management (institutional mapping) Function of BVCs Represent the interests of fishers in DoF-BVC meetings	Structure of co-management (institutional mapping) Function of BVCs Represent the interests of fishers in DoF-BVC meetings Participate in rule formulation and enforcement	Structure of co-management (institutional mapping) Function of BVCs Represent the interests of fishers in DoF-BVC meetings Participate in rule formulation and enforcement

Implementation arrangement

Implementation challenges

- i. Delayed policy and legal framework – co-management started in 1993-95 but policy and legislative frameworks were passed and approved in 1997 and 2001,
- ii. Delayed implementation of legal tools – management agreements, plans, transfer letters, authority letters, licences, etc,
- iii. Not in line with Decentralisation Policy,
- iv.

Implementation review

- i. Organisational/Institutional structures i.e. formation of CLU and BVCs,
- ii. BVCs and association 1994-1998 and capacity building,
- iii. BVCs, AFCs, FMUs and Association 2000-2001,
- iv. Reviewed structure proposed in 2003.

APPENDIX 12: STATUS OF BMUS DEVELOPMENT IN KENYA

By D. Murakwa

Introduction

The Communities around Lake Victoria have for centuries relied on the fisheries resources for food, employment and recreation. However, recent trends seem to point to a bleak future as fish production continues to decline due to resource over exploitation, destruction (through bad fishing methods and gears) and pollution.

The mission of fisheries department and its strategic objective

The mission of the fisheries department is to sustainably and effectively manage and develop national fisheries resources for increased supply of fish and fishery products for socio economic benefits of the present and future generations of the country. Its strategic objective is to promote development of traditional and industrial fisheries including utilisation, conservation of capture fisheries resources, encourage aquaculture development and promote recreational fisheries on sustainable basis.

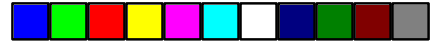
Community participation in fisheries

Prior to the 1990's, the Government used to manage fisheries resources without direct involvement of fishing communities and others who hold stake in the resource. This led to a situation where the other players in the industry felt that the resource belonged to the Government. This perspective led to various issues of concern, such as increased cases of destructive fishing practices, over fishing, environmental degradation/pollution and cross border fishing conflicts among others. It is due to these that the Government had to change its strategy in fisheries management by incorporating the resource users.

In an effort to sensitize the fishing communities on their role in the management of fisheries resources of Lake Victoria, the beach management units were formed. This was done through various meetings involving the fishers as the major stakeholders. BMUs have been so far formed in over 200 fish landing beaches in Kenya. The main objective of the BMUs are to streamline fishing practices at the various beaches and oversee implementation of fisheries conservation measures, such as ensuring use of legal gears; recommended fish sizes caught; protection of fish breeding grounds; and observation of closed seasons

Some BMUs achievements

- i. Surveillance and monitoring activities in the lake conducted in collaboration with BMUs have contributed to over 40% reduction in harvesting of undersize fish and significant reduction of destructive fishing gears.
- ii. A sense of resource ownership has been instilled in many BMUs and by extension fishers.
- iii. A good number carry out routine patrols without relying on Fisheries Department for resources.
- iv. The BMUs have established sub-committees responsible for specific tasks. This has been vital in effective information dissemination & project implementation.
- v. Reduced child labour in the fishery.



Some input from fisheries departments & other government agencies to the BMUs

- i. Series of cross border meetings involving BMUs have been held with a view to resolve conflict over fishing ground.
- ii. Several trainings have been done on various aspects of fisheries resource conservation, fish handling, hygiene & sanitation.
- iii. Support in-terms of equipment for surveillance and institutional establishment.

BMUs Development process in Kenya

Since the 1960s the fisheries department have been having a link with fishermen through beach committees. The committee was headed by a beach leader with the support of other committee members who were elected by fishermen with the supervision of the fisheries department. However, it was not fully recognized. Term of office was not specified but ranges from between 2-3 years during which the beach leader and its committee were expected to take up relevant roles.

The current activities of BMUs in Kenya

- i. Law enforcement by ensuring that all boats are registered, destructive gears and methods are not allowed and fish breeding areas & refugia are protected (*surveillance equipments far in- adequate*).
- ii. Beach development such as construction & maintenance of fish bandas and sanitary facilities, as well as maintenance of access roads.
- iii. Collection of fisheries related data (Ensures that all fish are landed at the beach and recorded).
- iv. Handle emergencies at beach level, resolution of conflicts and welfare matters among the fishers.
- v. Assist in control of water hyacinth.
- vi. Custodian of beach resources.
- vii. Put up and maintain sanitary facilities such as toilets, bathrooms & drainage structures.

Sources of funds for the BMUs

Registration of new boats and new entrants, fund raising, levies on fish landed and on fish traders, parking fee levied from trucks, good will from members, and donation from the Government and NGOs among others.

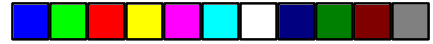
Challenges facing BMUs

Lack of management & entrepreneurship skills, leadership wrangles & political interferences, inadequate funds for implementation of initiated projects, poor infrastructure (fish roads, banking services), lack of storage facilities, conflicts (cross border & internal issues), legal backing for the BMUs activities is lacking, HIV/AIDS scourge (infected & affected) and declining fish catches and price fluctuations among others.

Conclusion and way forward

- i. Formation of BMUs has helped to supplement government surveillance & monitoring efforts, and has resulted in a marked reduction in the harvesting of juvenile fish, improved data collection and beach sanitation.
- ii. Resource users are vital in implementation of resource management policies.
- iii. Fishers are a rich source of information on indigenous knowledge specifically on breeding areas and seasons hence should be involved in decision-making about management measures for the sustainable fishery resource.

- iv. Communities have the potential to manage community-based projects sustainably if they own the process from the inception stage.
- v. Legal empowerment of the BMUs is vital for them to be effective (this process is underway, we are at information gathering stage).
- vi.



APPENDIX 13: BMU EXPERIENCE IN KENYA

By S. Ogama

Background information

Initially, fishers used to have an organization structure at each and every fish-landing beach. These structures were referred to as *Beach committees* headed by a beach leader with other 8 to 9 members. For one to be eligible to hold the beach office one had to be a licensed fisherman and a beach leader had to be aged over 50 yrs with good character and sound ability to arbitrate fairly. Elections of a beach leader or beach committee was every 3 years (unless otherwise) through queuing system after campaign and being supervised by fisheries department. The roles of the beach leader and beach committee included: welfare purposes and handle emergencies at the landing sites, arbitration, coordination of fishing activities, extension service arm of Government agencies on conservation, fish processing, health, hygiene and sanitation, initiate and manage beach development projects, official access point to the beach.

Issues leading to formation of BMU

Increased number of fishers, expansion and commercialisation of the fishery and ensuring that disadvantaged groups such as women and youths are represented, increased environmental degradation and increased child labour in the fishery.

Core functions of BMUs in Kenya

- i. Collect fisheries related data (No. of boats, gears by type, fishermen, landings by weight/species).
- ii. Play leading role in implementing fisheries conservation measures.
- iii. Offer extension services in areas of concern from time to time (HIV & waterborne diseases, good fish handling practices etc.).
- iv. Carry out arbitration and handle welfare & emergencies at the beach.
- v. Custodian of beach finances.
- vi. Put up and maintain sanitation facilities such as toilets, drainage.
- vii. Maintain fish reception and handling facilities such as banda, wheelbarrows, crates, tables etc.
- viii. Assist in fair marketing of catch by regularly checking on weighing scales.
- ix. Initiate and maintain development projects at the beach .
- x. Ensure security of facilities at the beach.
- xi. Official reception of beach visitors.

Sources of funding for BMUs

Goodwill from beach members/ well wishers, donations from members, Government and non-governmental organizations for development projects, fines from offenders, levy on fish landed under various categories either routinely or whenever need arises, levy on new fishers, trucks collecting fish from the beach, vehicle parking and, annual registration of fishers and vessels.

Networking & linkages

Fisheries Department - registration of fishers, fisheries conservation issues, initiation and maintenance of development projects.

Other government departments and institutes such as KMFRI, Public Health, Ministry of Cooperative Development, Department of social services, KARI (water hyacinth control), Provincial Administration, Local Authority (Development of infrastructure).

LVFO (capacity building), Non Governmental Organizations such as OSIENALA, Action AID, UHAI Lake Forum, CDTF, IDEAS, HEM NET, AFIPEK etc.

Some of the achievements of BMUs

- i. Procured and maintained patrol equipments.
- ii. Set up and maintained fish handling facilities (banda, cold store).
- iii. Set up and maintained beach infrastructural facilities e.g. access roads, beach fencing, support to local primary schools, police post, health clinic).

iii. support building

**APPENDIX 14: STATUS OF BMUS DEVELOPMENT IN
TANZANIA**

- vi. Other roles for the BMUs are: inventory of fishers, daily records, fisheries data records and controlling migration of fishers.
- vii. Other responsibilities, which would be found relevant to BMUs.

2. Roles of Central Government (Fisheries Division)

Fisheries Division will continue to be the custodian of the Fisheries Act and will continue giving guidelines, taking into account the changing nature of the fishery in Lake Victoria, based on the scientific findings. This is so because several factors have to be considered, among others are:

- i. The size of the lake,
- ii. Existence of multiple stakeholders with varied interests on the resources,
- iii. The shared nature of the resources and its socio-political economy of the riparian states,
- iv. Its level of involvement in international and local economy.

3. Roles of Local Government and Regional Administration

The following responsibilities are vested upon Local Governments.

- i. To enforce the Fisheries Act No.6 of 1970.
- ii. To approve by laws prepared and approved by village governments.
- iii. To provide extension services and monitor fisheries data collection.
- iv. To provide technical support to stakeholders implementing fisheries activities and community micro projects.
- v. To collect revenues generated from the fishing industry for developing the fisheries sector.

4. Role of fisheries research

To continue providing scientific information necessary (demand driven) for the management and conservation of the fisheries resources. Specific research activities have been carried out regarding co-managerial initiatives both in Lake Victoria as well as its satellites lakes.

BMU DEVELOPMENT PROCESS IN TANZANIA

Research and consultative meetings

Various consultative and educational meetings were made during the formation of BMUs in all respective beaches. This was for the purpose of creating awareness on the concept itself and educating stakeholders on the importance of involving the fishing communities in the management of Lake resources. The discussions led to general agreement on the need to establish BMUs as a management tool to strengthen collaborative fishery management.

This led to formulation of 511 Beach Management Units in 598 beaches; of those 530 are designated beaches. This means some of the beaches were amalgamated. The number of BMUs per region was distributed as follows:

Table 14: Number of BMUs formed during its inception in 1998-2000

Region	Number of BMUs
Mara	123
Mwanza	266
Kagera	122
Total	511

The exercise started in Mwanza as pilot area and thereafter it was spread to Kagera and Mara regions. After the introduction of BMU in Lake Victoria the project staff particularly the District Fisheries Officers were required to carry out regular follow-ups to BMUs as a way of strengthening co-management initiative and improving the performance of BMUs. On the other hand all BMUs were required to carry out activities agreed during its formulation.

In addition, specific researches were undertaken as follows:

- a) Studies in two landing beaches (Ihale and Mwasonge) for a period of one year and a half, aimed at achieving the following:
 - i. Identification of co-managerial potentials, obstacles and sustainability.
 - ii. Identification of community institutions which influence/ownership of the fisheries resources.
 - iii. Identification of institutions, which could be used for these purposes.
 - iv. An understanding of whether or not community institutions are able to support the existing fisheries regulations.
 - v.

administrators to give an upper hand on revenue collection and management to 'good performing BMUs'.

- f) In April/May, 2003 the Fisheries Department carried out 'documentation exercise' on the level of confiscated gear by Fisheries Department and BMUs to evaluate the joint effort made through MCS activities since 1998.
- g) An integrated strategic plan has been developed in Tanzania sector of the lake by involving various stakeholders (e.g. Ministry of home affairs, Ministry of Local Government and Regional Administration, Ministry of Natural Resources and Tourism, Private sectors and Ministry of Justice) just to name the few on how BMUs and relevant institutions/Ministries should work together to combat illegal gears. High-level regional task forces for Mwanza, Mara and Kagera have been proposed to combat illegal fishing.

BMUs AND PERSISTING FISHERIES PROBLEMS IN TANZANIA

The high demand of Nile perch by European Union countries, America, Asia and Far East countries, has enhanced commencement of high quality processing plants around Lake Victoria. Attractive prices of Nile perch to fishers have also created fishing pressure in the Lake by increasing number of fishers, boats, gears, methods and many other related activities in the fishing. Together with this, poverty combined with ignorance while struggling for survival have culminated into serious increase of illegal fishing practices – using illegal gears and method. The table below indicates the number confiscated illegal gears in Kagera region (2000 - May 2003).

Table 15: Example of status of confiscated illegal fishing gears in Kagera region by May, 2003

District	Beach seines	Gill nets less than 5"	Katuli (Water splashing)	Hooks	Dagaa seines	Culprits
Bukoba rural	651	3605	21	760	301	132
Biharamulo	180	2841	159	3093	141	32
Muleba	811	5189	33	1350	400	86
Total	1,642	1,1635	213	5,203	842	250

Evidence show that, despite the fact of joint efforts in operationalisation of MCS, between FD and BMUs, a number of beach seines now seem to surpass beach seines which were available in 1998 regardless of the frequent confiscation of all these gears and taking culprits to court. Identified causes for its continuation are as follows:

- i. Operators/owners are funded by buyers.
- ii. Many beach seines now are locally constructed using stolen gillnets from camps, or constructed from manila ropes.
- iii. Punishment given to culprits outside the fisheries act and regulations, encourage the wrong doers to continue with the practice.
- iv. A delay of court cases culminates into corruption at all stages.
- v. Most of the people in the communities do not seem to be concerned due to close relationship with illegal fishers, others are bribed, some afraid of them, some benefit from the catches, hence support illegal fishing.

Illegal gear possession to a large extent is caused by the resource competition particularly in Nile perch fishery. Increased fishing effort in terms of number of landing sites, fishers, fishing vessels and fishing gears is an obvious indicator. This has also increased the number of both illegal gillnets, hooks and long lines. The table below indicates the frame survey results of Mara region.

above) when the Director of Fisheries tabled a concept paper to persuade Regional and District administrators to give preferential treatment in levy collection to well performing BMUs.

The table below shows the number of BMUs awarded tenders to collect revenue for District Councils by August 2003.

Table 17: Number BMUs awarded tenders to collect revenue for District Councils by August, 2003

Region	BMUs in specified landing beaches	Total
Mwanza	Nkome, Daladala, Kahunda, Kayenze, Nyamikoma, Ihale, Kigangama and All 14 beaches in Misugwi District: (Lubiri, Mondo, Lugobe, Mbarika, Nyabusalu, Mitego, Mikuyu, Sawenge, Nyahiti, Mwalogwabagole, Chole and Kigongo ferry).	21
Mara	Mlinga, Bwai, Kisorya ad Kome	4
Kagera	Nyabugera, Nyamirembe and Lubiri	3
	Total	28

(e) *Community support projects:* BMUs have involved in various community project activities. For instance, Kayenze BMU (Mwanza) has contributed funds for the construction of Teacher's house and primary school classes, worth T.Shs. 2,080,000.00 while Chole BMU (Mwanza) has contributed funds for the construction of a Village shallow well to supply clean water to the village members worth T.Shs. 2,000,000.00 and public toilet worth 200,000.00.

(f) *Operating and supervising LVEMP Microprojects:* Twelve (12) BMUs are implementing eleven fisheries micro-projects as a way of providing incentives to its members as well as the fishing community. The areas for micro-projects involved are fishing projects, road construction supervision, offices, water and sanitation and health.

The table below shows micro project implemented by BMUs in specified beaches.

Table 18: Micro project implemented by BMUs in specified beaches

Region	Specific Beach	Type of microproject
Mwanza	Chole	Fishing project
	Dala dala	Fishing project
	Nkome	Floating barge
	Chifunfu	Fish collection and transportation boat
Mara	Kinesi	Fishing project
	Nyang'ombe	Floating barge
	Mugango	Fishing project
	Bwai	Floating barge
	Kisorya	Fish collection and transportation
Kagera	Kome	Floating barge
	Bwina	Fishing project
	Lubiri Island	Fish collection and transportation

Table 20: Results of joint patrols at Idetemya Ward: Chole, Mwasonge and Kigongo ferry
May 1998-August 2003 in Misungwi District.

Illegal gear/activity	Number of illegal gear/penalty			
	Chole	Kigongo-ferry	Mwasonge	Total
Beach seines	10	6	5	21
Gill nets less than 5 inches	2,228	54	761	3,043
Dagaa less than 10mm	10	4	8	22
Splashing tools	54	5	61	110
Boats performing thefts	4	3	3	10
Heavily penalized fishermen as per by-laws set by BMU	69	10	18	97

(h) Training on various aspects has been channeled through BMUs: BMUs has been an entry point and mobilizer for research and extension works. Fisheries extension and research works are now simplified through BMUs as mobilizer and organizers during fisheries activities in the fishing communities. BMUs have been trained in various aspects. Among others are: Book-keeping, catch statistics records (Total length and weight) daily records of events, fish handling, sanitation and hygiene, filling systems, gear technologies, how to identify a poisoned fish and new systems of catch assessment records under IFMP project are some of ongoing trainings.

Table 21: Pilot trained beaches on catch statistics and length and weight data.

Region	Landing beach	Total
Mwanza	Kayenze, Kigongo ferry, Chole, Igombe, Ntama	5
Mara	Kisorya and Bwai	2
Kagera	Nyamkazi and Nyamirembe	2
Total		9

(i) Development of BMU Guiding Operational Manual: A draft for BMUs operational manual has been designed after consultative meetings with fishing communities, Village Governments, Officials, Fisheries extensions, Local Government officials and scientist. The document is now under review.

(j) Institutional collaboration: BMUs have been collaborating with other institutions such as Cooperative societies, Micro finance banks, Private credit and lending institutions, NGOs, CBOs and fisheries institutions (Fisheries Department and TAFIRI).

(k) Keeping records on catch statistics and other records: BMUs have been keeping records on fish catches landed and other records. For instance the BMU in Kayenze by 17th May, had 1950 fishers, 300 boats, average of 10-15 tonnes of fish daily, 6 agents were collecting fish at the beach. At Chole, type of fish, kilograms, mesh nets used, time went out and came back fishing, number of crewmembers and fishing ground are recorded daily.

(l) Incorporation of BMU in new draft bill: The Fisheries Division has incorporated co-management through BMUs as one of the local fisheries institution in the new draft Bill for the Fisheries Act of 2003.

(m) Job and incentive creation: BMU activities have created jobs to the fishing communities. For instance, in Kayenze beach in Mwanza 14 ladies are currently employed by BMU to collecting levy in Kanyenze and other near-by Islands within the Ward with a salary of Tshs. 30,000.00 per month. In some places job have been created for investments in transportation of cargo boats made by BMUs groups. Engine operators, cargo porters and supervisors get daily wages. Some beaches the BMU have arranged for beach cleaners and are getting paid one fish from each landed boat.

(n) Construction of BMUs premises/offices and communication facilities: Some BMUs have managed to construct their own office where by filing system, discussions and day-to-day activities are

- iv. How to give incentives to BMUs so that they continue to manage the fishery resources, which are the priority income generation to the Districts along the shores.
- v. How to strengthen the management of fisheries resources through stakeholders various institutions for sustainable development.
- vi. How to protect and ensure the environment is kept in a way that allows sustainable fishing for present and future.

(s) Special consideration by FD to Districts in Lake zone: Regarding recent contribution to BMUs, the Fisheries Division has done various issues. Among others:

- i. Joint facilitation with other projects e.g LVEMP for the establishment of BMUs (substantial amount of money has been spent through Fisheries Management Component and Fisheries Division).
- ii. About T.Shs. 104,400,000.00 have been spent to BMUs for various projects by Fisheries Division funds (retention). In total 12 BMUs have benefited from this allocation.
- iii. Development of various fisheries plans and strategies for improvement of BMUs.

EXISTING CONSTRAINTS AND LIMITATION FOR BMUs OPERATIONS

Despite the good performance observed during the four years (August 1998 to November 2002) there are several limitations that affect the performance of BMUs, these limitations include:

- i. Illegal gears are made locally at the beaches and fishers homes.
- ii. Lack of appropriate equipment for patrol such as vessels and communication tools.
- iii.

- xvii. Lack of regular follow-ups by FD staff to the formed BMUs to understand their emerging problems from time to time.
- xviii. Poor collaboration between Fisheries staff, village Governments, other stakeholders and members of BMUs for personal interest.
- xix. Lack of knowledge on co-management concept to some village members and leaders.
- xx. BMUs are not empowered through the Fisheries Act.
- xxi. Inadequate incentives, working facilities and equipment like motorized boats.
- xxii. Clanship and family relations prohibit good performance of BMUs to stop illegal fishing practices.
- xxiii. Dishonest member of BMUs.
- xxiv. Migration of fishers increases uses of unregistered vessels, fishing without licences, gear theft, poor beach sanitation and general incidences of illegal gear practices.

CONCLUSIONS

The success of managing the fisheries resources lies in how best the BMUs are involved. The BMUs should be seen as very important institution and given more attention and recognition in the implementation of various activities. This is so because they are the actual beneficiaries who have the opportunity of implementing soundly fisheries activities. Since some BMUs and local communities around the lake do not recognize this important opportunity, awareness, education campaigns and general capacity building is necessary for the smooth route in co-managerial arrangements.

RECOMMENDATIONS

- i. Prosecution and subsequent jailing of illegal gear owners and users should be expedited.
- ii. Fisheries sector in Tanzania should have their own-gazetted public prosecutors for handling court cases.
- iii. Regular joint patrols among fisheries staff and BMUs should be encouraged. This should also be arranged together with other relevant institutions such as public prosecutors, magistrates, marine police force and immigration departments.
- iv. Sustainable funding mechanism for BMUs operations such as MCS activities.
- v.

- xiv. BMUs be trained in surveillance skills, management and conservation of natural resources and entrepreneurship skills.
- xv. Fisheries Department should issue seizure forms once properties are confiscated from illegal fishers to avoid corruption and build trust to the community.
- xvi. District authorities and BMUs should run secret ballot public meetings to find out corrupt implementers and take decisive disciplinary actions against them.
- xvii. Patrol and extension service facilitation to DFOs and BMUs should be encouraged and given priority during District Management Meetings (DMTs).

WAY FORWARD

- i. BMUs Operational Guiding Manual is now in its final stage.
- ii. The process for legal empowerment in the revised fisheries Act has considered BMUs operations. BMUs roles, responsibilities and legal capacities are issues for considerations.
- iii. Consultative meetings/seminars on initiation of BMUs by-laws and speeding up the process of approval by District Councils.
- iv. Regular follow-ups for BMUs to be included and attended in the fisheries work plans.
- v. Training of BMUs in various skills: Fish quality, handling, sanitation, management of natural resources and entrepreneurship skills.
- vi. Provision of proper and adequate working equipment.
- vii. Establish working relationship with other sector of economy and Government organs such as police, magistrates and court of laws.
- viii. Study on determination of sources of financing of beach community level enterprises and the utilization of the revenue generated with specific reference of BMU has been prioritized.

BIBLIOGRAPHY

- Hoza, R. B. and Mahatane, A. T (1998): Co-management in Mwanza Gulf. Lake Victoria Environmental Management Project. Fisheries Management Component. Ministry of Natural Resources and Tourism, July 1998.
- Hoza, R. B. (2003): Co-management program in L. Victoria, Tanzania. Prospects and limitations. Paper presented at the workshop on Community involvement in management and conservation of Lake Victoria resources in Tanzania on 22-23 May, 2003 BOT Conference Hall. LVEMP Fisheries Management Components, Ministry of Natural Resources and Tourism.
- Hoza, R. B. (2003): Assessment of BMUs Performance in Kagera, Mara and Mwanza regions. Paper presented at the National Workshop on the Assessment of the performance of BMUs in Tanzania from 27-28th January, 2003. Regional block hall, Mwanza.
- Kayungi, J. (2003): Fishing Practices in Kagera Region an assessment from 1997-Feb. 2003. Paper presented at the workshop on Community involvement in management and conservation of Lake Victoria resources in Tanzania on 22-23 May, 2003 BOT Conference Hall. LVEMP Fisheries Management Components, Ministry of Natural Resources and Tourism.
- Kayungi, J. and Byarugaba, C. (2003): Report on the BMUs follow-ups in Ukerewe District. Paper presented at the National Workshop on the Assessment of the performance of BMUs in Tanzania from 27-28th January, 2003. Regional block conference hall, Mwanza.
- Kilosa, E. (2003): Fishing Practices in Mara Region an assessment from 1997-Feb. 2003 Paper presented at the workshop on Community involvement in management and conservation of Lake Victoria resources in Tanzania on 22-23 May, 2003 BOT Conference Hall. LVEMP Fisheries Management Components, Ministry of Natural Resources and Tourism.

**APPENDIX 15: STRATEGIES OF COMMUNITY
PARTICIPATION: EXPERIENCE OF
KAYENZE BMU, TANZANIA**

delegated the supervision thereof to the Village Government. BMU as subcommittee of the Village Governments under Defence and Security Committee has been taking care of the station.

There are 1,950 gillnet fishers, 204 dagaa fishers, 350 fishing boats, 50 long liners and also 26 fish transportation boats, which collect fish from neighbouring beaches and Islands. On average 7 to 10 tonnes of Nile perch fish worth about T.Shs.7-8 millions land at Kayenze beach daily. Fish landed at this site is bought by seven (7) processing factories two are based in Musoma town in Mara region, while the remaining are from Mwanza City.

BMU DUTIES AND RESPONSIBILITIES

1. Prohibition of illegal fishing practices

The BMU in collaboration with the entire fishing community were sensitised and mobilised through meetings to combat all illegal fishing practices such as use of beach seines, under mesh gill nets of less than 5", dagaa mosquito nets of less than 10mm and water splashing methods (katuli) and fencing (ndiba). Through the MCS activities at the beach, the BMU at Kayenze has confiscated 27 beach seines and 586 gill net of mesh sizes less than the recommended 5". All these were officially burnt during various village assemblies.

2. Control of fishers migration

The BMU have designed special forms for migrant fishers who normally move from one District to another in search of rich fishing grounds. The forms have to be certified by Village Executive

6. District council agency (tender) for revenue collection

The BMU at Kayenze has embarked on the third term in this activity in Magu District Council in Mwanza. The BMU has been contracted due to good reputation and anti-corruption practices, which is normally performed, by private bidders. In addition wise use of the income generated in the provision of social services is an added advantage. The council has realised a lot of revenue from fishing than other sector of the economy. This has led them to decide to collaborate closely with the BMU as one of the institution at the beach than individuals who could be having no interest in sustainable fishing, which will finally bring sustainable income to the District.

Fish receiving station-running costs which is normally generated through landing fee charges from fishers and fish collectors do not reach 50% of the total costs. The remaining is solicited from the allocation of 10% (revenue collection project) together with other sources such as penalties from various offences subject to BMUs by-laws. The penalties range between T.Shs. 1,000.00 to T.Shs. 50,000.00 depending on nature and seriousness of the offence.

GENERAL AND AREA SPECIFIC PROBLEMS FACED BY KAYENZE AND OTHER BMUS IN TANZANIA

- i. Ignorance among the fisher communities on co-management results into conflicts with the BMU members.
- ii. BMUs are not yet a legally formalised institution.
- iii. Confusion to the fishers caused by the government's measure on slot size 50-85cm total length for Nile perch against legal mesh size nets.
- iv. Lack of patrol equipment for the BMUs.
- v. Lack of feedback on information on the side of District fisheries office demoralises the BMUs.
- vi. Illegal fishers normally run away to the neighbouring countries/District when patrols and special operation are conducted either by BMUs or FD.
- vii. Islands have been hiding places for illegal gears as well as those using them.
- viii. Less priority is given to islands on research and extension services due to costs and risky factors.
- ix. Prominent and rich fishers are influential in various ways including mobilising small-scale fishers not to abide with fisheries regulations.
- x. Theft of fishing equipment is rampant.
- xi. Lack of environmental and fisheries management education to BMUs, village Government leaders and other community members lead to non compliance with the regulations.
- xii. Lack of entrepreneurship skills results into failure to balance management and livelihood strategies.
- xiii. Lack of incentive makes some of the BMUs to despair and drop out of the group.
- xiv. Incidence of killing, house burning, theft of domestic assets for the BMU members makes them to resign from the group.
- xv. Conflicts with village Governments for personal interests have been one of the challenging factors.
- xvi. Reluctance of some fishers and stakeholders in joining and supporting BMUs.

RECOMMENDATIONS

- i. Fisheries Division should continue to give training to BMU, Village Government leaders and the entire fishing communities on the following aspects: fish quality, good governance, entrepreneurship skills and beach sanitation. More emphasis should be given to sustainable fishery resource exploitation.
- ii. Communication facilities should be installed at the beaches. This will enhance information flow including feed-back.
- iii. The Government (FD) should involve BMUs in MCS activities in collaboration with other institution such as police force.
- iv. The BMUs should be given official identity cards.

APPENDIX 16: STATUS OF BMUS DEVELOPMENT IN UGANDA

By J. Ikwaput

INTRODUCTION

Lake Victoria contributes over 50% of the total annual fish catch in Uganda. Fisheries play a significant and important part in the economy of the country contributing to foreign exchange, food security and employment creation. The purpose of fisheries management is to ensure conservation, protection, proper use, economic efficiency and equitable distribution of the fisheries resources both for the present and future generations through sustainable utilization.

The earliest fisheries were mainly at the subsistence level. Fishing gear consisted of locally made basket traps, hooks and seine nets of papyrus. Fishing effort begun to increase with the introduction of more efficient flax gillnets in 1905. Fisheries management in Uganda started in 1914. Before then, the fishery was under some form of traditional management based on the do and don'ts. History shows that the Baganda had strong spiritual beliefs in respect of "Mukasa" (god of the Lake) and this indirectly contributed to sustainable management of the lake. If a fisherman neglected to comply with any of the ceremonies related to fishing he was expected to encounter a bad omen (Rev. Roscoe, 1965).

However, with the introduction of the nylon gill nets, which could catch more fish, traditional management regime broke down. By 1955 the indigenous fish species like *Oreochromis variabilis* and *Oreochromis esculentus* had greatly declined in catches. Decline in catches led to introduction of poor

monitoring and regulating the resource base. There was little or no participation by the community and other stakeholders in management of the fisheries resources.

Fisheries management involves a number of tasks, which include policy formulation, resource estimation, access rights, harvesting regulations, market regulations, monitoring, control and enforcement. Through effective regulation, resource management seeks to gain 'optimum' outputs from the resource base. In a few cases, management may recognize that a resource is under-utilized and seek to increase output. However, in Uganda, management recognizes that many fisheries resources are close to being over-utilized, and so is seeking to limit exploitation.

The national vision for Uganda's fisheries sector is "*an ensured sustainable exploitation of the fishery resources at the highest possible levels, thereby maintaining fish availability for both present and future generations without degrading the environment*".

The centralized management regime has many problems with the main being:

- i. They are expensive.
- ii. They assume that the state is the sole source of regulation.
- iii. The rules assume homogeneous fishing communities and homogeneous applicability.

Considering alternative systems of resource management has many advantages. One of the foremost alternative suggestions for fisheries resource management is Co-management. Co-management has no fixed definition. In its simplest definition, fisheries co-management is the sharing of the management responsibility between government agencies and the resources users through their organizations. Co-management also means that fishermen's organizations are granted authority by law to enforce regulations on member fishermen.

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

Major difficulties with any centralized approach to resource management are lack of adequate information, inadequate enforcement of government rules, limited funds and staff, and corruption (Baland & Platteau, 1996). The incentive to violate rules on the part of the resource users is increased by the fact that relations between them and the state bureaucracy are usually distant and antagonistic. Users tend to view local resources as government property rather than their own, an attitude that seriously erodes their motivation to protect them. Co-management is a meeting point between overall government concerns for efficient resource utilization and protection, and local concerns for equal opportunities, self-determination and self-control.

Co-management involves various degrees of delegation of management responsibility and authority between the local level (resource user/community) and the state level (national, district, sub-county).

In co-management, fisher's views are represented through fisher's organizations or equivalent institutions (Jentoft, 1989). Fisher-folk need to organize themselves into groups and be willing to work collectively to get their voices heard. In implementing co-management all different

categories of fisherfolk have to participate. The different categories include the boat owners, fishers, fish traders, artisanal fish processors, industrial fish processors, fishing gear and equipment suppliers, boat makers, consumers and the environmentalists. Co-management requires functional communities, with characteristics, which are conducive to co-operation

STEPS TAKEN TO INVOLVE FISHERS IN FISHERIES MANAGEMENT

The need to involve fisherfolk in fisheries management has been discussed in a number of meetings e.g. Committee for Inland Fisheries of Africa (CIFA 1989); Ministry of Agriculture, Animal Industry and Fisheries (MAAIF 1997) and Uganda Fish and Fisheries Conservation Association (UFFCA 1998). However, no concrete steps were taken to implement the recommendation.

THE UGANDA NATIONAL FISHERIES POLICY

The National Fisheries Policy (MAAIF, 2002) recognizes the need for sustainable management and community participation. The policy supports public participation in the management of the fisheries resources and equitable sharing of the benefits. This will ensure respect for traditional

- i. support local governments in the implementation of national laws and policies;
- ii. formulate and enforce community byelaws at the local level;
- iii. monitor fishing activities within their localities;
- iv. identify community priorities and plan for improvement;
- v. collection of fisheries information for planning purposes.

INTERNATIONAL OBLIGATIONS

There are a number of international obligations to which Uganda is a signatory. These obligations have provisions for sustainable utilization of natural resources including the participation of the resource users in management. Some of these include:

1. Code of Conduct for Responsible Fisheries (CCRF)

The Code of Conduct for Responsible Fisheries (FAO, 1995) calls upon the states to ensure that representatives of the fisheries sector and fishing communities are consulted in the decision-making process and involved in other activities related to management planning and development.

2. Convention for Biological Diversity - Uganda is a party to the Convention for Biological Diversity (CBD) and is required to develop national strategies, plans or programs for the conservation and sustainable use of biological diversity.

3. East African Community

Uganda is also a signatory to the Treaty for the Establishment of the East African Community. The Community brings together the three partner states of Kenya, Uganda and Tanzania. The treaty was signed on November 30, 1999 by the heads of state of the participating governments. Article 114 provides for the management of natural resources. The partner states agreed to take concerted measures to foster co-operation in the joint and efficient management and the sustainable utilization of natural resources within the community for the mutual benefit of the Partner States. In particular, the Partner States agreed to adopt common regulations for the protection of shared aquatic and terrestrial resources. The Partner States agreed to co-operate through the adoption of common policies and regulations for the conservation, management and development of fisheries resources amongst others. Through this mechanism a lot has been achieved including harmonization of fisheries legislation and adoption of co-management concept.

4. Lake Victoria Environmental Management Project (LVEMP)

During LVEMP project, co-management concept in fisheries was introduced and community participation in fisheries management was promoted. It was realized that fisheries management could only succeed if fisher folk were brought on board to participate in management and

participate in fisheries management. There was general agreement between the staff and fisherfolk on the need to share management responsibilities. The idea of co-management has been welcomed by fishermen and in a number of sensitization workshops held they have echoed their desire to participate although a number of issues have been raised which they feel may hinder their participation. Fishermen reason that they know each other and since they live with each other, they are in a better position to carry out some of the duties like law enforcement and monitoring. However, their worry is how to deal with armed lake pirates and local political interference. There is a general feeling among fishers that giving more responsibility for fisheries management to local fishermen will yield positive results in terms of control of law breakers, reducing the level of immature fish catches, willingness to give accurate data, compliance with regulations and solving problems among fishermen.

LVEMP constituted a Regional Task Force on harmonization of fisheries legislation. The report highly recommended the establishment of BMUs. BMUs were piloted under the Co-management

- v. Monitoring and control; and
- vi. Enforcing of regulations.

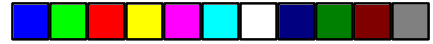
The Beach Management Rules provide for procedures of establishing the BMUs, the functions of the BMU, election of the BMU Committee, the tenure of office of the Committee, the removal of committee, supervision of the BMU, financing of the BMU activities and other matters. Formats for registration of BMU members and their fishing equipments have been provided in the Statute.

The Department has prepared guidelines for better implementation of the Rules. Guidelines will have to pass through the Top Policy Management of MAAIF before it goes to the Attorney General for Interpretation.

CONCLUSION

User participation in the development and implementation of fishery management plans may be a critical element for successful management. It is felt that only an empowered community can address both the need for economic development and the conservation of natural resources. A fishery cannot be managed effectively without the cooperation of fishers to make laws and regulations work.

Sustainability of our natural resources requires participation by all stakeholders. However, the BMUs as a frontline institution that is in direct contact with the resource should be seen as playing a very vital role and therefore needs support from all other stakeholders. The future of BMUs in fisheries management has now been legalized and provides a good foundation for successful co-management of the fisheries resources.



ACHIEVEMENTS OF BMUs

Easy information dissemination among fisher folk, reduction of illegal gears and methods, promoted hygiene in the fish landings, built cooperation among fishers, created awareness on HIV/AIDS through counselling/sensitisation, controlled water hyacinth through manual removal and distribution of weevils, encouraged fishers to diversify and have food security, built fish handling slabs, mobilising fuel for lake patrols, encouraged construction of better permanent buildings within landing sites, reduction in number of undersized nets, fishers are now willing to listen to advice, raised advocacy level and attracted investments from politicians and, attracted more women into fisheries.

CHALLENGES

Lack of funds, lack of logistics, lack of authority, lack of identification documents, conflict of interest by different authorities at the landing sites e.g. LCs, BMUs, Gabunga, Police, lack of harmonised implementation of law enforcement, armed people protecting those using illegal gears, lack of sanitary facilities which make enforcement hygiene standards difficult, BMUs find it difficult to control fishing effort because they find it difficult to exclude fishers from entering the fishery and, lack of motivation for BMU committees

SOURCES OF FUNDING

Entry fee for new entrants to the fishing industry both the fishers and fish traders, registration fee charged to the BMUs, some BMUs receive part of the 25% returned to the LCI from the Sub-county, others get money from landing tenders e.g. in Busia, some landing charge landing fee to the fish transport and passenger boats, some mobilise money from within the committee members whenever there is a problem, some BMUs receive support from the fisheries department and, others charge a fee for cases handled

NETWORKING WITH OTHER ORGANISATIONS

With DFR over illegal fishing, licensing, hygiene and sanitation. Linkage with LCs in Sanitation, Conflict Resolution, & Joint Meetings. With Police in patrols, suspect arrest & safe Custody. Other Gov't Institutions: NEMA over Environment Matters, Health Min. over issues eg: Bilharzia, HIV/AIDS. NGOs/Donors is limited. With World Vision in Sanitation. Nature Uganda in Environment Conservation. EDF under Min. of Health. With BMUs in sharing Information on Security.

RECOMMENDATIONS

All Migrating Fishers Must have a letter of Recommendation. Identity cards should be issued to all BMU committee members. BMUs should develop by-laws to control movement of fishers. There is need to harmonize law enforcement between BMUs & other Law enforcement agencies. Harmonize BMU statute in the 3 countries and the harmonized laws be implemented across the board. Meanwhile, national laws must be respected when crossing international borders. Well-defined funding identified to support BMU activities.

CONCLUSION

Fishers are ready to participate in fisheries management if BMUs are empowered.

APPENDIX 18: BMUS AND INTEGRATED LAKE MANAGEMENT IN UGANDA

By I. Ebong, M. Lwanga, J. Scullion

INTRODUCTION

National Importance of Capture Fisheries

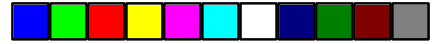
The fisheries sector makes significant contributions to poverty reduction and economic growth in Uganda. It does this in a number of different ways. First, it provides a source of direct employment, and livelihood support for about one million people. Secondly, it generates substantial economic benefits for the country. Recent evidence estimated the total value of the sector in 2002 to be about \$220 million and contributing 12% of total GDP in that year. This is a considerably higher estimate than previously reported in Government statistics. A major part of the total economic value (63%) was generated by domestic fisheries whilst the remainder (37%) resulted from the export of fish and fish products, contributing \$81 million in 2002. Fish currently ranks as Uganda's highest agricultural export earner and the considerable export revenues play an important role in contributing 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 at an estimated average annual per capita consumption of 10 kg. The species of fish that play an important role in food security and nutrition of the poor, differ from those supporting export earnings. The geographical distribution of the different species is a key factor influencing policy and management objectives on different water bodies.

OWNERSHIP AND ACCESS TO CAPTURE FISHERIES RESOURCES

In order to achieve wise use and sustainable management of fisheries resources, it is necessary for fisheries stakeholders to understand the nature of ownership of these wild resources and the rights of access to use and benefit from them. Fish resources of Uganda, and the waters and wetlands within which they live, are common property resources held in trust by Government on behalf of the people of Uganda. Common property means they are shared resources, shared by the people of Uganda and not private property. Held in trust means that the State does not own the resources but rather, retains overall mandate for taking care of these resources for the benefit of its people now and in the future as directed by the Constitution of Uganda. This function introduces the important concept of good stewardship of fisheries resources undertaken by the State on behalf of its people. Access to use, and profit from these common property resources is one of the key aspects of fisheries management.

In Uganda, it is often thought that, with the exception of lakes Edward, George and Wamala, all other capture fisheries are "open access", meaning almost anyone can become fishers. In legal terms, this is not true since the State uses a licensing system as a means to control access. According to the law, fishing boats require licences and fishermen require permits. In practice, however, licensing has not been widely used as a management tool. It is only on the above mentioned lakes where an upper limit to fishing boat numbers has been set by the State to control the amount of fishing effort. On all other waters, local governments use licensing as a way of raising local income through taxation but not for resource management.

The principle underpinning the licensing system is that the user must pay for the right to access, and benefit from fisheries resources. Obviously, the whole population of Uganda, who share these resources, cannot all have direct access to them since this would quickly lead to the



destruction of the resources by too much fishing effort. However, being shared resources, the population has a right to benefit from these resources too. It can do this through the consumption of fish as high quality food, for which it must pay. Secondly, the revenue raised by government from fisheries licensing and taxation can be used to provide wider social services (e.g. schools, clinics, roads) to the non-fisheries population.

The licensing system, seen in this way, is not only a management tool to control access and fishing effort, but also a means of more widely dividing and distributing the shares of benefits to be derived from fisheries resources. Because of its critical importance to resource management, and in view of an expanding human population putting increasing pressure on fisheries resources, it is essential that future access to fisheries resources is controlled through setting limits to the number of licensed operators. The international Code of Conduct for Responsible Fisheries, to which Uganda is a signatory, strongly advocates for an end to “open access” fisheries since they are not sustainable. In Uganda, progress is being made using licensing to developing controlled but more equitable access agreements made in a participatory and transparent way in partnership with resource users. This is discussed in more detail in Section 9.

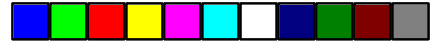
THREATS TO FISHERIES RESOURCES

Inadequate understanding of the significant contributions made by capture fisheries in fighting poverty and boosting economic growth has resulted in meagre central government budget allocations apportioned to the sector. This has undermined the ability of the sector to fulfil management responsibilities. In addition, past management approaches have not involved local people and local governments have not understood the importance of resource management. As a result, the routine collection of fisheries information (statistics) upon which to base plans and management decisions is inadequate or lacking, management rules face widespread non-compliance and management capabilities are insufficient to safeguard resources.

Consequently, fish resources and the many livelihoods they support in Uganda are threatened by the use of illegal and destructive fishing gears and methods, especially when used on fish breeding grounds. One of their most damaging effects is the capture of young, immature fish and its subsequent illegal processing and marketing. Increasing human population has led to increased fishing pressure, which in turn creates problems of overfishing and resource depletion. In the absence of effective integrated management, factors outside fisheries also pose a threat. These include a range of environmental problems such as soil erosion and siltation, agro-chemical, industrial and domestic pollution, eutrophication, and destruction of wetlands.

PAST FISHERIES MANAGEMENT

Fisheries management in the past was under the control of central Government using out-posted fisheries staff. The administration and management was based on a centralised “command and control” approach. There was very little or no participation by fisheries communities in resource planning, management and development. Prior to decentralisation, local head fishermen, known as *Gabungas*, controlled fishing operations at fish landing sites. At some fish landing sites, Landing Site Committees (LSC) were established under promotion by Government. With the advent of decentralisation, and an episode of serious fish poisoning in the late 1990s, came the establishment of Fisheries Task Forces formed to curb fish poisoning. At about the same time, on lakes where fishing boat numbers were legally controlled e.g. Lakes George, Edward and Wamala, lake wide Fish Rehabilitation Committees were set up to reduce illegal fisheries activities.



Gabungas, landing site committees and task forces were not democratically elected, their functions were not clearly defined and their operations often lacked transparency and accountability. The decentralisation policy is designed to transfer many decision-making responsibilities and service delivery to local governments. Whilst the State retains overall mandate for taking care of fisheries resources, both local governments and the State are responsible for ensuring the conservation and rational use of natural resources. Despite their new responsibility, many local governments have inadequately addressed issues of fisheries management. They have, however, recognised the importance of these resources as a source of local government revenue generated through various taxes and fees, but have reinvested too little of this income towards sustainably managing fish resources.

Despite the existence of *Gabungas*, landing site committees and fisheries taskforces, the process of decentralisation has not sufficiently protected fisheries resources and the many livelihoods dependent on these resources. A new management approach is therefore needed. It is within this background that the leaders of the fisheries sector realised that there was need for radical change if resources were to be used wisely and livelihoods, especially of the poor, were to be secured. Precisely how this is being achieved and how it relates to legally empowered Beach Management Units (BMUs) and integrated lake management are outlined in the following sections of this paper.

NEW FISHERIES MANAGEMENT APPROACH

National Fisheries Policy and Plan

The fisheries sector is undergoing a period of major transition during which reforms are underway to develop and improve national policy, legislation and institutional efficiencies. The transition involves improvements in civil society organisation, closer links between communities, private industry and government, improved linkages between different levels of government and between different government sectors that have traditionally remained largely disconnected.

For decades, the fisheries sector in Uganda has been managed without an explicit policy document. It is only in 2000 that the DFR began a participatory process to formulate a new and visionary National Fisheries Policy (NFP). The policy-making process involved a wide range of stakeholders at all levels and therefore took quite a long-time, finally resulting in the policy being submitted to Cabinet in 2003.

The policy strongly promotes a new and exciting management approach involving local people in the co-management of fisheries resources in partnership with local governments throughout the country. There has been much publicity about problems on Uganda's lakes, such as overfishing, catching immature fish and using illegal fishing methods. This new approach means that for the first time local people will be involved in monitoring fishing activities and in making decisions about how the lakes are managed. Local people will work alongside local government fishery officers, together working towards better management and more productive fisheries. They will be supported by the Government's Department of Fisheries Resources (DFR).

It is also an approach in which communities control the access to and the share of benefits from fisheries resources in partnership with local governments. In this new co-management approach adopted throughout Uganda, Beach Management Units provide the institutional structure within which fisheries stakeholders will work in partnership with local governments and the State to improve planning and to sustainably manage fisheries resources.

The fisheries sector operates under the Poverty Eradication Action Plan (PEAP) and the over-arching Plan for Modernisation of Agriculture (PMA) and Government's policy on decentralisation. In its shift to co-management, the sector is clearly putting the general principles underpinning the PMA into practice. The fisheries policy also highlights the need to link directly

Institutional Restructuring

Fisheries structural reform is taking place simultaneously at three levels - micro, meso- and macro-level, with new links between these levels. At micro-level, or village level, a national network of 500-700 community BMUs is being created. At meso-level, new integrated lake management organisations are being formed as local government associations that cut across district boundaries to include whole lake ecosystems. At macro-level, the DFR is in the process of transforming into a new National Fisheries Authority to improve its institutional efficiency and service delivery.

BMUs AND CO-MANAGEMENT: WHAT'S NEW?

programmes implemented at different levels. During these programmes it is vitally important that the reasons for transforming past local management institutions into BMUs under co-management are clearly explained and fully understood by stakeholders. The differences between them need to be clearly understood by all stakeholders. The key differences that have been presented so far during sensitisation programmes on lakes George, Edward and Kyoga are

i) Legal Powers

planning and management purposes. Past fisheries management institutions were not legally management through effective partnership between local governments and civil society resource dependents.

ii) Representation and democracy

free and fair elections by all members to elect BMU Committee members, past institutions were more exclusive, less transparent, often involving only boat owners.

(iii) Inclusion of the poor: affirmative action

Fishing crew are amongst the poorest members of fishing communities. They can now join the BMU and even stand for election. They will be involved in planning and decision-making. Their

poorer crew members.

iv)

allowed to be involved in making decisions and have had limited access to fishing and related activities. The BMUs will promote the role of women by ensuring that they hold equal rights in membership to men and that they have at least 30% of the seats on the BMU Committee. Exemptions to this will only be allowed where there are not enough women members present, though efforts must be made to promote women's interests in fisheries. Women largely bear the

(v) Forming higher associations

BMUs can legally associate with other BMUs to form higher level assemblies for lake wide management. Past institutions were not legally empowered to do this.

(vi) Collecting and using fisheries information

BMUs have a legal responsibility for the collection of fisheries planning information, past institutions did not. With their new powers of fisheries planning and management, they will need information upon which to base their decisions.

(vii) Making management plans

BMU have many more functions than past institutions, especially in terms of planning by linking with and influencing national and local government development planning.

BENEFITS OF BMU MEMBERSHIP

For BMUs to succeed in co-management, the incentives of being a member of a BMU must be very clear for all individuals in different stakeholder groups. The key benefits that have been presented, among others, during sensitisation programmes on lakes George, Edward and Kyoga

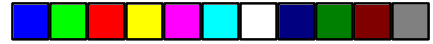
conduct patrols and generally ensure compliance with legislation. This localised “Monitoring, Control and Surveillance” (MCS), when linked to more appropriate rules being made, agreed by the majority of stakeholders, should result in considerable improvement in compliance and a reduction in illegal, harmful fishing practices.

(v) Improved sanitation and healthy environment

Under the Statutory Instrument, BMUs have powers to enforce safety guidelines for fish quality assurance, sanitation and fishing operations in their area of jurisdiction. Improved fish handling, sanitation and waste disposal will not only make the lake and the landing sites safer places to work, but will guarantee good quality fish for the market. Improved safety of fishermen on water is in the best interest of all.

(vi) BMUs as advocacy groups

BMUs will also act as advocacy groups, using their amalgamated experience and knowledge to



About 700 BMUs will form a network of higher level BMUs and will work with local and central government. These grass root fisheries custodians will safeguard the resources upon which their livelihoods depend by reducing harmful and illegal fisheries activities on water and land.

Improve post harvest quality and safety to increase exports, whilst ensuring small-scale fish processors and traders, who are often women, benefit. The competitiveness of, and investment in, the sector must be increased to deliver this. BMUs will be a major vehicle for increased investment by promoting members with similar fisheries business interests to form associations to maximize the profitability of their enterprises. The BMUs will also promote sanitation and hygiene at landing sites to improve fish quality and safety.

Promote community-based information collection, use and transfer systems and integrate with local and central government systems. A major constraint on sector planning has been the absence or inadequacy of fisheries data. It is expected that through BMUs, fisheries information will be collected and used starting at community level to enable local people, including women and the poor, to contribute to decision-making, planning and management.

Develop and support institutional arrangements for sustainable economic growth and poverty reduction within the fisheries sector, operational and sustainably funded at all stakeholder levels. The fisheries sector is undergoing major transformation. This involves building a network of BMUs as a grass roots institutional foundation operating within lake wide management organisations under the guidance and support of a central fisheries management body.

ESTABLISHING BMUs IN ILM STRUCTURES

Background

The ILM project is supporting the Government in the establishment of an integrated lake management approach on lakes George and Kyoga. Lake fish resources are highly mobile and not restrained by man-made administrative boundaries. In order to protect and use these resources wisely requires a single lake wide organisation that brings together the many and varied stakeholders from different levels and sectors who have an interest in maintaining the health of the lake.

In bringing these stakeholders together in a single forum, issues on both land and water can be discussed, differences of opinion expressed, agreements reached locally, and cohesive and effective management plans developed and implemented in a coordinated manner. This involves helping local communities and governments develop institutional structures, processes and plans. Lake George being the smaller lake (280 km²), covering 3 districts and containing only 8 landing sites, was selected as a pilot area for the transfer of lessons learned to the larger Lake Kyoga (2,800 km²) covering 10 districts, 50 sub-counties and 420 landings.

LAGBIMO

Ownership of the institutional development process

The local District Governments of Bushenyi, Kamwenge and Kasese worked with communities around Lake George and national Government institutions for three years (2000-2003) to create a lake wide institution for planning and managing the natural resources of the lake and its basin for the social and economic benefit of lake dependent communities. The process was driven by an Institutional Development Working Group (IDWG) with representatives from local communities, sub-county and district governments and national agencies including the Department of Fisheries Resources, Directorate of Water Development, National Environment Management Authority, Wetlands Inspection Division and Uganda Wildlife Authority.

Integrated legally empowered structure

All their wisdom, hard work, patience and determination finally paid off and culminated in the establishment of the Lake George Basin Integrated Management Organisation (LAGBIMO) in March 2003 (Figure 25). This is the first organisation of its kind located totally within the borders of Uganda. The organisation brings together district and sub-county government representatives



LAKIMO constitution to stakeholders and it is currently being ratified by the ten district councils. The proposed structure of LAKIMO is shown in Figure 26.

Scaling up the institutional development process

Scaling up the institutional development process from the smaller Lake George with 8 landing sites to Kyoga with 420 landings meant that a different approach in integrating the BMUs into the overall structure had to be taken. For instance, all BMUs on Lake George are well represented in the LAGBIMO structures. This is not possible on Kyoga since there are about 180 BMUs to be formed across the 420 fish landings. Therefore, some form of BMU associations is needed to provide representation at the lake wide level. This will be achieved, as shown in Figure 27, by forming sub-county and district BMU Committees (BMUCs). Representatives from district BMUCs will form a Lake Kyoga BMUC and all members of this committee will also be members of the LAKIMO LWA. The Lake Kyoga BMUC will probably also link with government to form a Fisheries Management Committee.

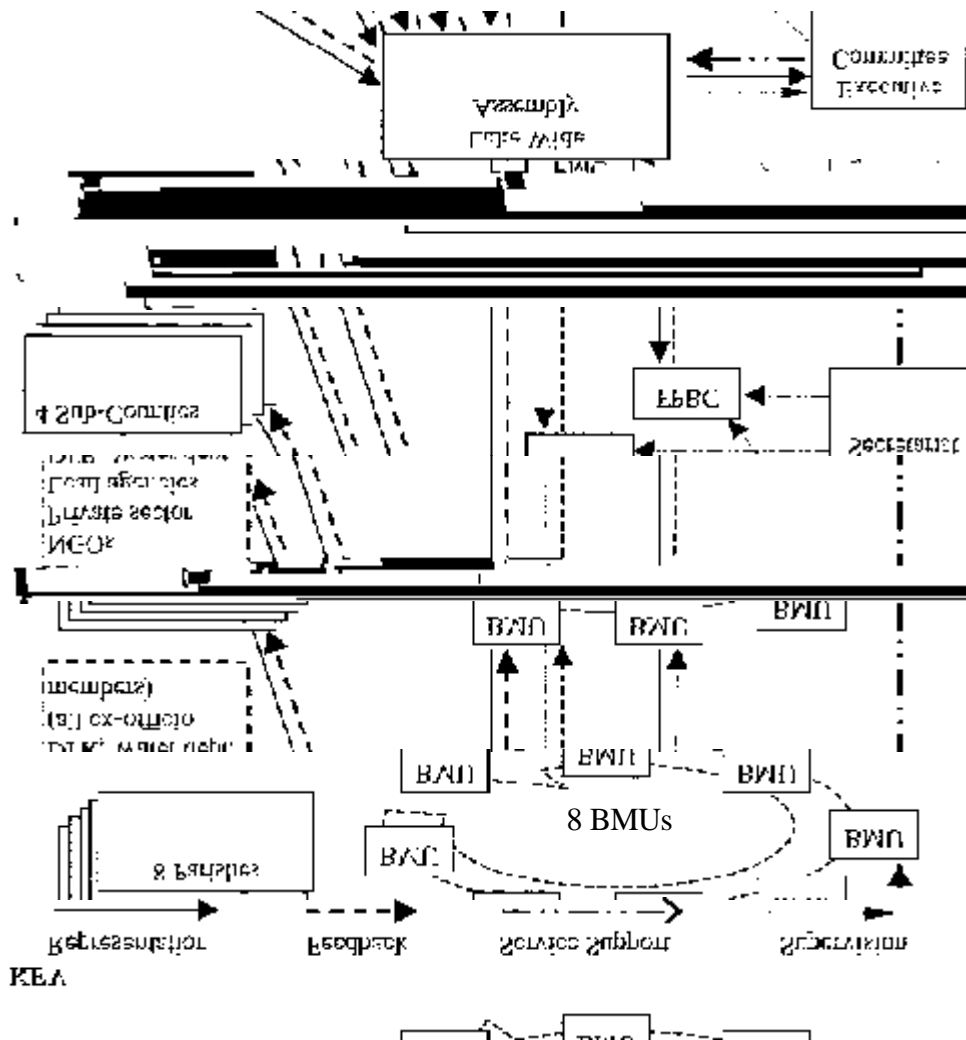
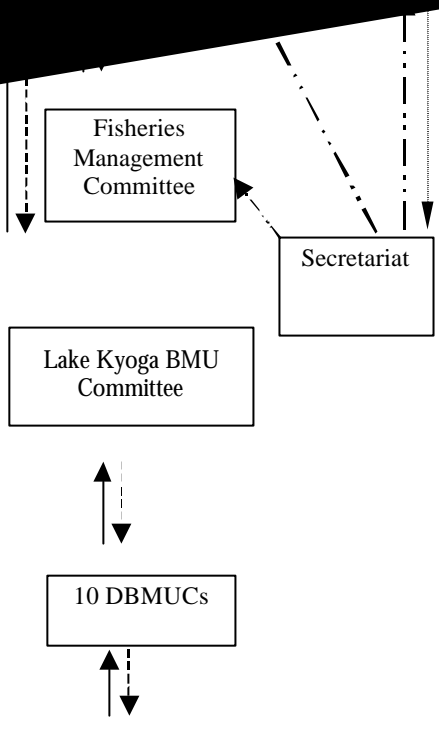
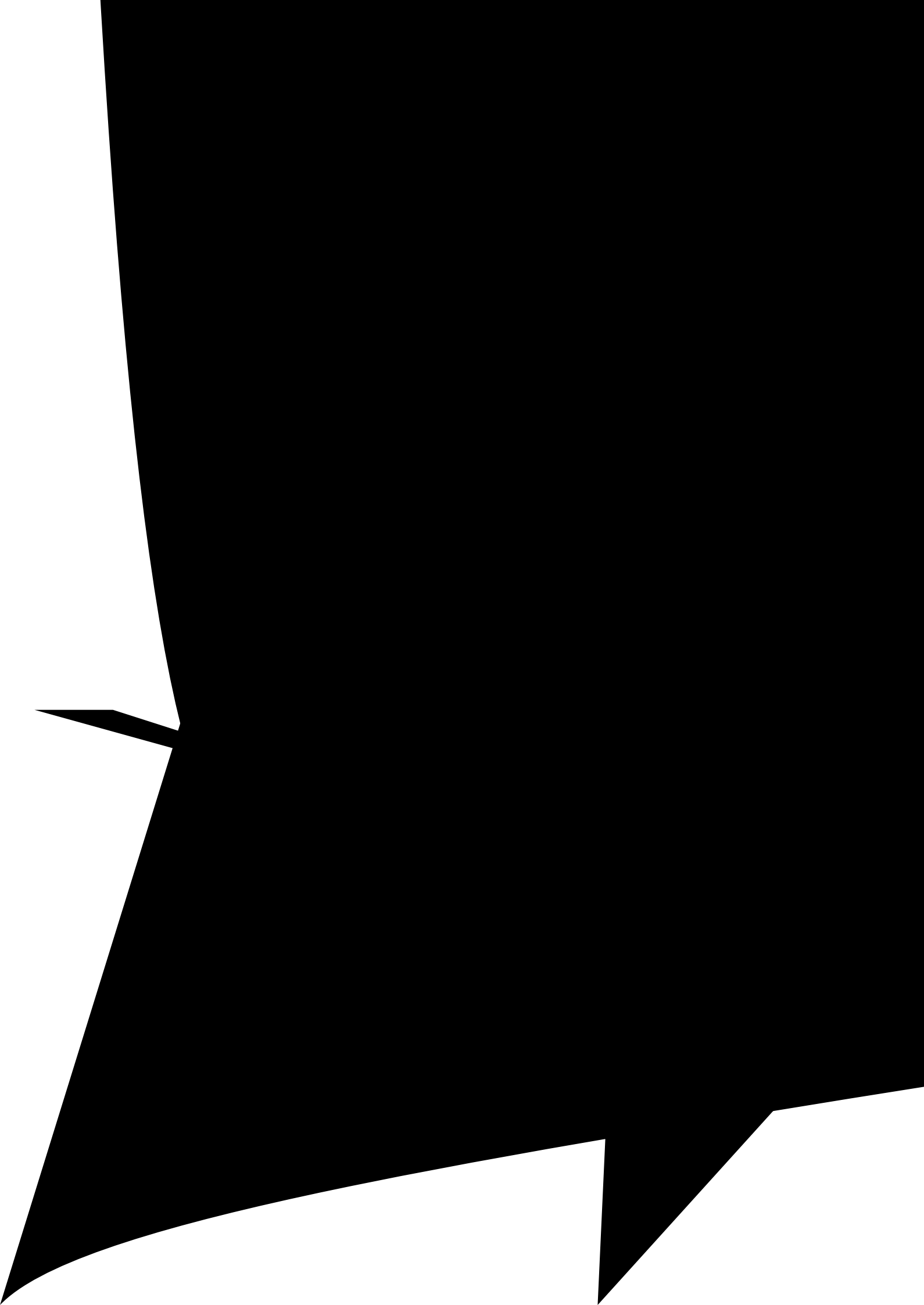
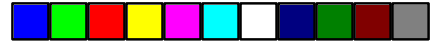


Figure 25. LAGBIMO Structure







The training sessions were also used to monitor progress and discuss constraints on the community-based collection system. In addition, trained community data collectors and leaders receive mentoring and guidance through regular monitoring visits to landing sites by fisheries staff.

Community data collection: a major breakthrough

At community level, the project has encouraged communities to support a community information collector to collect and compile information on the fish catch, value and fishing effort. To help compile accurate and reliable information, ILM facilitated the process by providing the weighing scales, calculators, information storage facilities and protective wear for the data collectors. The communities remunerate the 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 supported by the LAGBIMO Secretariat.

BMUs in development planning

BMUs are responsible for developing and implementing local and lake wide fisheries management plans and more holistic beach development plans within their area of jurisdiction that can cover the entire shoreline of a given parish. They will advocate for the integration of lake wide plans, where relevant, and local plans into parish development plans using village plans as a entry point (Figure 28). They will also collaborate with local government partners in the collection, use and dissemination of not only fisheries but other types of information, especially environmental information for the improved management of resources. In LAGBIMO, this is achieved through the Finance, Planning and Budgeting Committee (FPBC) working closely with the FMC under the supervision of the Executive Committee.

BMUs will have strategic importance as organised groups within the community and will be in an advantageous position to influence events in their communities. Because they are legally empowered they will have an advantage over other groups in accessing government support. As an organised fisheries group they are eligible for NAADS technical support. They can also access funding from PMA. It is important to emphasise that BMUs will not only plan for natural resource management, they will also plan in a more holistic manner taking into account service delivery issues that affect their livelihoods, such as water supply, sanitation, health care and roads.

BMUs will provide entry points into community based planning for the integration of environmental and natural resources concerns into local government development planning systems. These planning initiatives are being spearheaded on Lake George as a model for other parts of the country.

BMU ROLES IN CONTROLLING FISHERIES ACCESS

Decentralised fisheries licensing

One of the most radical changes to take place on Lakes George and Edward in the last fifty years occurred December 2001 when the centre delegated responsibility for fisheries licensing to district governments. This follows years of discontent and grumbling within landing site communities about the lack of access to fishing licences. It is radical because, for the first time since 1952, new boats have been licensed to fish on the lakes. Secondly, with ILM support, the exercise was done in a participatory, transparent and accountable manner, involving communities, local leaders, local government and DFR in the selection of new licensees. Thirdly, for the first time, poor marginalized groups such as barias and women were allotted a licence quota.

This change was made through an amendment to laws concerning national fisheries licensing procedures produced by DFR in line with the revised national fisheries policy. Under the new Statutory Instrument, licensing powers are now delegated from central to district governments. New procedures developed on these two lakes and agreed at district, sub-county and parish levels, comply with national guidelines and incorporate a clear focus on equitable licence distribution, taking into account livelihoods dependency and gender balance. This change in licensing procedure is designed to serve as a model for other lakes.

BMUs and fisheries licensing

With the establishment of BMUs on lakes George and Kyoga, BMU Committee members are currently involved as part of village level Verification Committees that scrutinise annual licence applications and make recommendations on each applicant to a District Selection Board. Thus, BMUs are already playing a key role in controlling access to fisheries resources of these two lakes.

opportunity to simplify a complex local fisheries taxation system and take into account its differential impacts on different stakeholder groups with regard to poverty reduction.

FINANCING LAKE WIDE MANAGEMENT ORGANISATIONS

At the district level, direct revenue from fisheries is in form of tender revenue collected by private tenders at landing sites and markets and various taxes/fees on access (vessel licence, fishing permit), processing and trading. Central government has recently substantially increased existing licence fees. These include fishing vessel licences and fishmonger licences of Ugandan nationals and foreigners. This has resulted in considerable increases in locally generated fisheries revenue remitted to local governments.

At present, funds generated by fisheries taxes are used for general local government activities, with no or little reinvestment into the management of the fisheries that generated them in the first place. Specific efforts are needed to ensure that fisheries revenue (at least a proportion of it) is ploughed back for resource management. This is a reform taking place on Lake George where LAGBIMO has been allocated US\$ 13,000 from 3 riparian districts and 4 sub-county governments towards supporting its management operations. This represents the first major step in improving reinvestment of fisheries funds into the fisheries sector by local governments. If the same pro-rata government allocations were made by ten districts and 50 sub-counties on Lake Kyoga, this would generate an annual income to LAKIMO of \$145,000. This amount would cover the annual operating costs of the organisation, including its permanent Secretariat which are estimated at about \$150,000.

Building the capacity of BMUs


In order to establish a functional BMU network as quickly as possible on lakes George, Kyoga and Edward, a series of three initial training courses are being developed with ILM support. The three modules cover a) orientation of BMUs with regard to their functions, b) book keeping and financial management and c) fisheries management. It is planned to offer the three training courses to up to 193 BMUs from the three lakes. The courses will be implemented between November 2003 and March 2004. The approximate costs of these training courses per BMU are a) orientation of BMUs with regard to their functions - \$900, b) book keeping and financial management - \$300 c) fisheries management - \$1000.

Monitoring the performance of BMUs

BMU activities will be routinely monitored by the Parish or Village Executive Committee whilst the DFR will undertake less frequent supplementary monitoring. The monitoring process requires standardisation. This will be achieved by the issue by DFR of a detailed set of BMU performance criteria and a guide for the application of these criteria to evaluate the effectiveness of BMU operations. Financial audits will be undertaken locally since BMUs will receive and use revenue from local taxation.

OPPORTUNITIES FOR LVFO

1. *Creation of a Ugandan BMU network on Lake Victoria in 2003*



management. LVFO should consider Uganda as a special case for use of start-up funds given that there now exists a BMU statute.

2. Building the capacity of BMUs in Uganda in 2004

There is an opportunity to collaborate with an on-going BMU training programme by extending similar training to Lake Victoria in early 2004. The modules cover orientation, financial management and fisheries management. Additional capacity support is needed to establish information collection systems by BMUs. The support needed covers both training and field equipment for each BMU. The community information collection system of Lake George may serve as a model to be considered by the riparian countries of Lake Victoria.

3. Forming BMUs associations and linking to LVFO


The model of BMU association used on Lake Kyoga may be useful for lake Victoria in Uganda. It offers the opportunity to forge closer institutional links between civil society BMUs, local governments and LVFO itself.

4. Financing BMUs

The Uganda model offers options for sustainable funding of BMUs that may be considered by Kenya and Tanzania.

5. Fisheries licensing

New decentralised fisheries licensing procedures established on Lakes George and Edward in Uganda offer a potential model for other Ugandan lakes and neighbouring countries.



APPENDIX 19: FIELD VISIT TO WICHLUM LANDING SITE, BONDO DISTRICT, KENYA

By Dr. R. Abila

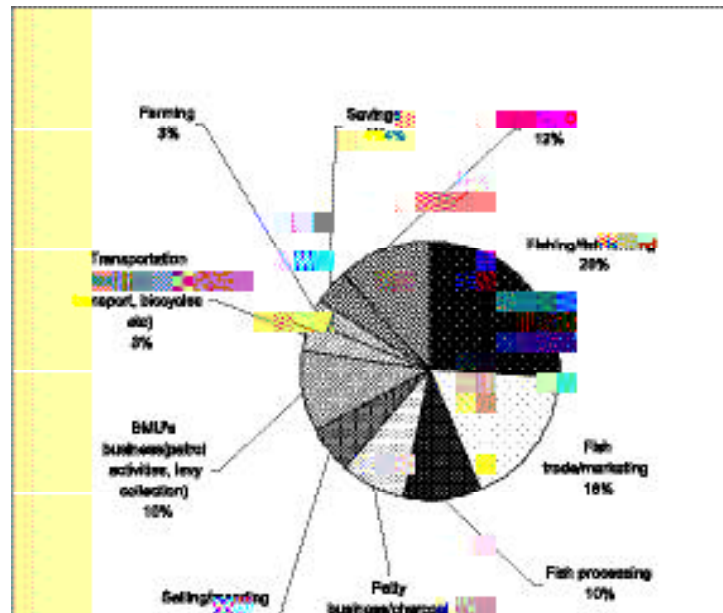
INTRODUCTION

The field visit to Wichlum landing site took place on 8 October 2003, as the official excursion for the LVFO/IUCN International Workshop on Community Participation in Fisheries Management. Most workshop participants attended the excursion, led by the Executive Secretary, LVFO. Participants arrived at Wichlum beach at around 10 a.m. and were there for over three hours. Participants were taken around the beach to observe the various activities carried out by the BMU, the co-operative and other organizations. After that, a few local leaders and guests were invited to give speeches on fisheries issues.

All the participants were asked to make written comments on a provided sheet, touching on the various activities they observed on the beach, specifically on the economic activities, strengths and challenges facing the BMU and the co-operative society and the opportunities for these institutions to participate in fisheries management in future. Over 70 participants submitted their comments and observations, which are summarised below.

ECONOMIC ACTIVITIES

A number of economic activities were observed on the beach (Fig 29). Most participants observed fisheries – related business as the most important, specifically, fishing, fish marketing and fish processing.



THE STRENGTHS AND CHALLENGES FOR THE CO-OPERATIVE SOCIETY

Participants visited the co-operative office and observed the various activities undertaken by the organisation. Participants commented on the various factors that made the co-operative strong, and the challenges it faced (Fig 30 and Fig 31). Most participants observed that the main strength of the co-operative was due to its strong, well-organised and respected leadership. Secondly, the co-operative had assets (for example, boats, outboard engine and office building). Third, the

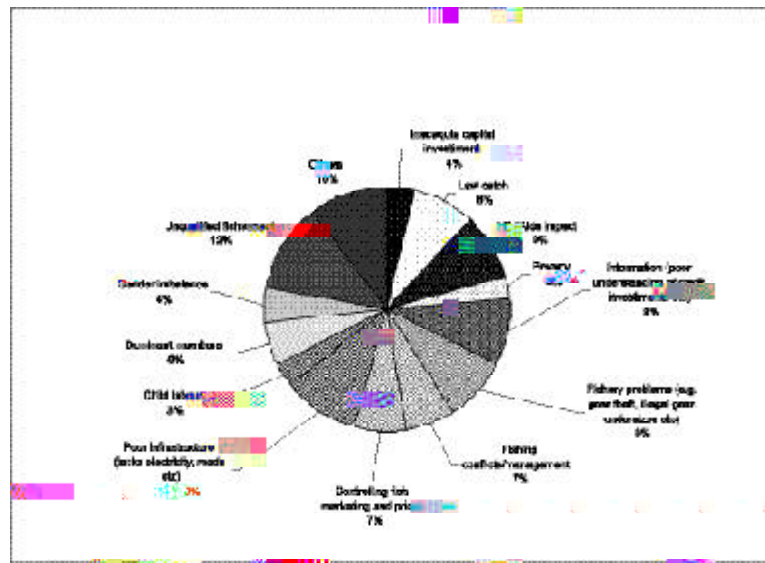


Fig 31 Challenges facing Co-operative

STRENGTHS AND CHALLENGES FOR BMU

Participants also visited the co-operative office and observed the various activities undertaken by the organisation. Participants commented on the various factors that made the co-operative strong, and the challenges it faced (Fig 32 and Fig 33). Most participants observed that the main strength of the BMU was that it had a well-organised administrative structure, with clearly defined roles and division of duty, consisting of effective sub-committees. Secondly the BMU had strategic facilities for carrying out its operations, such as a patrol boat and outboard engine. Third, the members of the beach were committed to supporting their BMU. The BMU, however, faced a number of challenges, in particular, poor infrastructure, high illiteracy among members, impacts of HIV/ Aids, lack of facilities to bank money, gender imbalance and fisheries management problems (Fig 33).

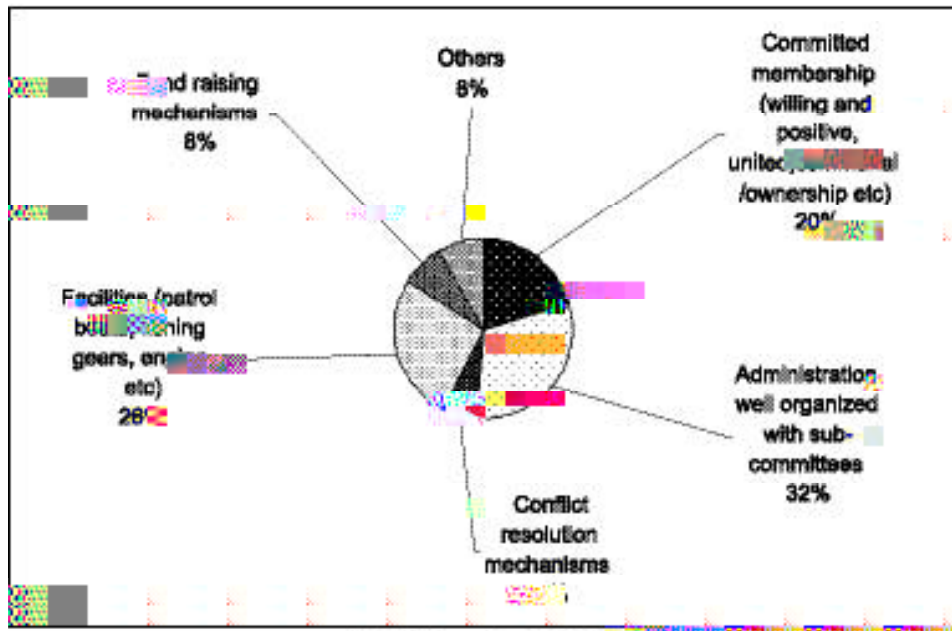


Fig 2. Strengths for ...



OPPORTUNITIES FOR COMMUNITY INSTITUTIONS IN FISHERIES MANAGEMENT

Finally, most participants suggested that, based on the Wichlum system, community institutions had high potential to participate in various roles of fisheries management, in particular, implementing fisheries regulations, surveillance, networking with other communities for better understanding and development of landing sites (Fig 34).

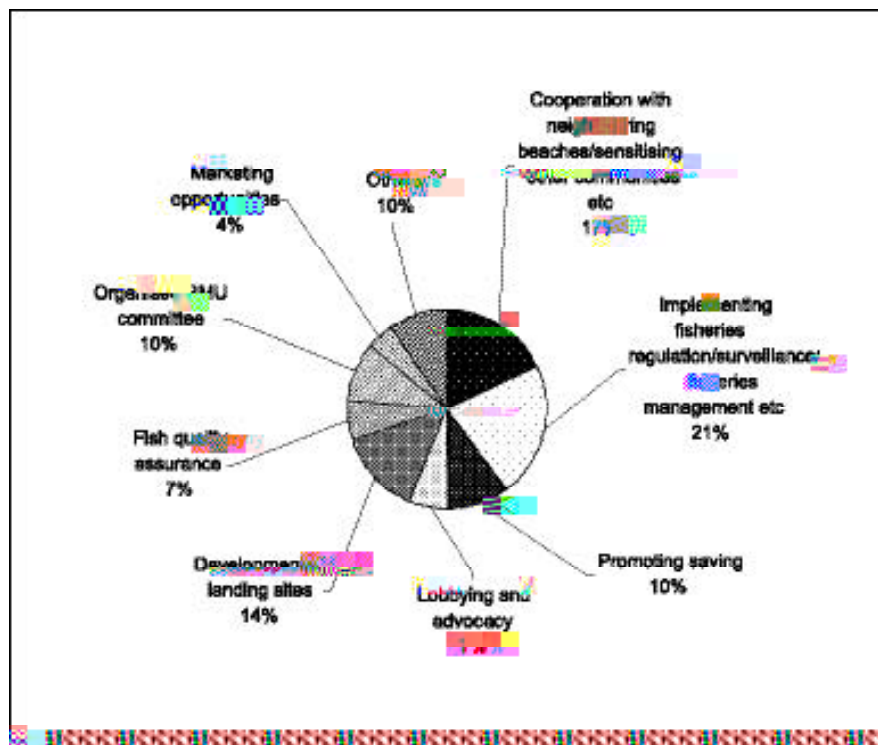


Fig 34. Opportunities for community institution in fisheries management

APPENDIX 20: CLOSING REMARKS

By Dr. Kelly West

Honorable PS,

Esteemed Directors,

Distinguished Colleagues,

It is my great pleasure to address you today. I coordinate the freshwater program and projects for IUCN – The World Conservation Union. In addition to our collaboration with the LVFO on Lake Victoria, we are also working with partners on Lake Tanganyika, the Rufiji River Basin, Lake Naivasha, the Pangani River Basin, Uganda's wetlands and other freshwater systems in Eastern Africa. In all these cases we are working with partners for the sustainable management, wise-use and conservation of these ecosystems.

From this regional perspective, I am pleased to tell you that we are quite happy with this project on Lake Victoria. Yes, there are challenges.

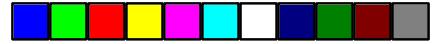
Lake Victoria is a limited resource, whose access must be regulated,

Poverty is widespread,

In some areas we see the continued unsustainable fishing practices

And everyone is aware of the cross-border conflicts over resource access and pricing

But I want to assure you that such challenge and conflicts are normal. What IUCN has learned from its experiences in Eastern Africa, and indeed from its experiences around the world, is that it is natural and indeed normal for different users of a resource to have different objectives and different ideas



As our colleague from FAO told us earlier in the week, “ *Local people have a fundamental right to participate meaningfully in the management of local resources on which they depend.* ” The challenge for Lake Victoria is determining how to integrate community participation in national and basin-level management processes. This isn't easy and IUCN's experience has shown that this is normally a long process. But I believe that considerable progress was made this week.

I am happy to see the governments of Kenya, Tanzania and Uganda recognizing the important role of communities as the custodians of this resource and to see these governments interacting with community representatives, in this forum, to discuss and plan for the future co-management of the resource.

LVFO has made significant progress as a regional institution. The challenge that remains is integrating communities in national and regional decision-making processes. BMU's are the vehicle to provide this community participation.

I have been impressed with the capacity that the BMUs have demonstrated this week. And I want to assure you that through our partnership with LVFO and the Project Implementation Team, IUCN remains committed to continuing this process, to provide support and capacity-building to BMUs to participate in the management of this important shared resource.

IUCN has been honored to be a part of this process. And

On behalf of IUCN I would like to express our thanks to:

our hosts here in Kisumu, the Kenya Fisheries Department,

our partners, the Lake Victoria Fisheries Organization,

the fisheries departments and research institutes of Kenya, Tanzania and Uganda,

the Project Implementation Team,

and to the BMU's for their enthusiastic participation and good will.

I would like to also gratefully acknowledge the important contributions made from FAO, the World Fish Center, the Mekong River Commission, Tanga Coastal Zone Management Project and Dept of Fisheries, Malawi who have shared their experiences in co-management with us.

Finally, I would like to assert that a picture is worth a thousand words, so I want to stop here and re-capture, through photos, some of the events of this week for our guest of honor.

Thank you

APPENDIX 21: CLOSING SPEECH

By Mr. John Makumi

Mister Chairman,

Chairman and Members of the LVFO Executive Committee,

Representatives of International Organizations,

Distinguished Participants,

Ladies and Gentlemen:

I am very pleased to join you today at this closing session of the International Workshop on Community Participation in Fisheries Management on Lake Victoria, organised by the Lake Victoria Fisheries Organisation and IUCN – The World Conservation Union.

This workshop has made an important and timely contribution to our lake fisheries. Representatives from fisher communities in Kenya, Tanzania and Uganda have discussed pertinent issues of fisheries management together with Directors of Fisheries Departments and Research Institutes, District Fisheries Officers, and fisheries experts from our region as well as from international institutions, Malawi, Bangla Desh and the Mekong River Basin.

The objective of this workshop was to review the state of Beach Management Units (BMUs) on the lake, and to chart a way forward for their further development. I am very happy to note that this objective has been achieved, and I thank you all for your dedicated work during the past four days.

Ladies and gentlemen

This workshop has made it abundantly clear that we must specify the roles and responsibilities of fisher communities as partners in fisheries management and strengthen their capacity to fulfil these roles. We have heard that the institutional mechanisms for the management of Lake Victoria are strong at the national and regional levels, not least due to the good progress made by the LVFO and its member institutions. At the same time, however, institutions are still weak at local level, creating a top-heavy imbalance that needs to be corrected through support to Beach Management Units. This support is urgently needed in view of the worrisome trends afflicting heavy imbalances.

centralized management systems. We therefore have to view our support to BMUs as an investment in the fisheries that will benefit our children.

Ladies and gentlemen

|

Ladies and gentlemen

The detailed recommendations and action plans that you have developed during this workshop mark a significant progress in the management of our lake fisheries. I look forward to receiving a full report of your deliberations, and I encourage the workshop organizers to distribute the report widely, so that it can provide guidance in the coming months and years.

I wish to thank the LVFO and IUCN for organising this workshop, and NORAD for providing the funds through the Nile Perch Fishery Project. I believe your efforts have been worthwhile, and we hope that you will continue to be partners in the development of Lake Victoria fisheries.

I hope you found some time to enjoy the beauty of Kisumu City, in spite of your hard work over the past four days. To our visitors from near and far, I wish you a safe journey back home, and I hope

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APPENDIX 22: PROGRAMME

Tuesday, 7th October	
8:00 – 9:00	Registration of Participants
8:30 – 9:00	Courtesy Call on Provincial Commissioner, Nyanza
OPENING SESSION	
Chair: Mrs Nancy Gitonga, Director of Fisheries, Kenya <i>Rapporteur: Ms Beatrice Nyandat</i>	
9:00 – 9:30	Welcoming Remarks <i>Director of Fisheries, Kenya H.W. The Mayor, Kisumu City Provincial Commissioner, Nyanza Province Executive Secretary, LVFO Representative, IUCN Eastern Africa Representative, NORAD</i>
9:30 – 9:45	Opening Address <i>The Hon. Minister of Livestock and Fisheries Development of the Republic of Kenya</i>
9:45 – 10:00	Tea Break
BACKGROUND SESSION	
Chair: Prof. Philip Bwathondi, Director General, Tanzania Fisheries Research Institute <i>Rapporteurs: Dr Konstantine Odongkara, Mr Robert Okech</i>	
10:00 – 11:00	Presentation 1: <u>The Concept of Co-Management in Fisheries</u> <i>Mr Wolf Hartmann, Programme (River and Reservoir Fisheries), Mekong River Commission, Lao PDR</i>
	<i>Questions and Discussion</i>
11:00 – 12:00	Presentation 2: <u>The Status of Lake Victoria Fisheries</u> <i>Dr William Kudoja, Senior Scientist, Lake Victoria Fisheries Organization, Secretariat</i>
	<i>Questions and Discussion</i>
12:00 – 13:00	Presentation 3: <u>Institutional Mechanisms for Management of the Fisheries Resources of Lake Victoria</u> <i>Dr Richard Ogutu-Ohwayo, Deputy Executive Secretary, Lake Victoria Fisheries Organization</i>
	<i>Questions and Discussion</i>
13:00 – 14:00	Lunch Break
OPERATIONAL ASPECTS OF COMMUNITY PARTICIPATION IN FISHERIES MANAGEMENT	
Chair: Dr. Rhoda Tumwebaze, Principal Fisheries Officer, Fisheries Department, Entebbe, Uganda. <i>Rapporteurs: Ms Modesta Medard, Ms Dorothy Murakwa</i>	
14:00 – 15:00	Presentation 4: <u>Information Aspects of Community Participation in Fisheries</u> <i>Mr John Purvis, Artisanal Fisheries, Information Specialist, Regional Fisheries, Information Systems (SADC) and Ms Fatma Sobo, Senior Fisheries Officer (Fisheries Statistics), Fisheries Division, Dar es Salaam, Tanzania</i> <i>Discussant: Mr Jacob Ikilenya, Information and Database Officer, Lake Victoria Fisheries Organization</i>

- 5:00 – 16:00 Presentation 5: Legal Aspects of Co-Management in Fisheries
Mr Henning Teigene, Legal Officer, Development Law Service, FAO, Rome

Discussant: Ms Ruth Ojienda, Legal Officer, RECON CILE, Nakuru, Kenya.
- 16:00 – 16:15
Tea Break
- 16:15 – 17:15 Presentation 6: Financial Aspects: Transaction Costs and Resource Rent of Fisheries Co-Management
Dr Khondker Jahan, Research Associate, The WorldFish Center, Dhaka, Bangladesh

Discussant: Dr Richard Abila, Senior Researcher,

DEVELOPMENT OF BEACH MANAGEMENT UNITS IN EAST AFRICA

Chair: Dr. Enock Wakwabi, Deputy Director (Inland Waters), Kenya Marine and Fisheries
Research Institute, Kisumu
Rapporteur: Ms Fatma Sobo

14:00 – 15:00 Presentation 11:

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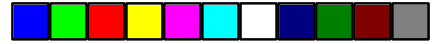
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Other titles appearing in this series:

1. **Cross-border Fishing and Fish Trade on Lake Victoria**, (2004), by S. Heck, J. Ikwaput, C. Kirema-Mukasa, C. Lwenya, D. N. Murakwa, K. Odongkara, P. Onyango, J. P. Owino and F. Sobo.
2. Report on **The International Workshop on Community Participation in Fisheries Management on Lake Victoria:**

LAKE VICTORIA FISHERIES ORGANIZATION (LVFO)

Established in 1994 by a Convention signed by the three Partner States of the East African Community (Kenya, Tanzania and Uganda), The Lake Victoria Fisheries Organization (LVFO) is mandated to foster cooperation among the three East African Community Partner States; harmonize national measures for the sustainable utilization of living resources of the lake; and develop and adopt conservation and management measures to assure the Lake's ecosystem health and sustainability of the living resources. The Organization has activities within 5 broad programme areas: fisheries policy, legislation, institutions and institutional processes; resource, environmental and socio-economic research monitoring; aquaculture; database, information, communication and outreach; and capacity building. The LVFO is governed by a Council of Ministers responsible for Fisheries matters in the Partner States. The LVFO is a specialised institution of the East African Community.

IUCN - The World Conservation Union

Founded in 1948, The World Conservation Union brings together States, government agencies and a diverse range of non-governmental organisations in a unique world partnership: over 980 members in all, spread across some 140 countries. As a Union, IUCN seeks to influence,



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