

# Unsung Heroes

**Not only is fish an important part of nutrition in the Southern African Development Community (SADC), but it is also a major—and unrecognized—element of trade**

**F**ish and fish products are a primary source of protein and essential nutrients in the human diet. Various fish and other aquatic species are available from both marine and fresh water in every country of the Southern African Development Community (SADC) region. These fish make a significant contribution to the nutrition and food security of people in southern Africa.

A major challenge to nutrition and food security is the increasing human population, particularly in developing countries, and the resultant increase in demand this will generate on already-stretched food resources. The global population is expected to grow by another 2 bn to reach 9.6 bn people by 2050, says FAO's 2015 State of Food Insecurity in the World report. More than half of this global population growth is expected to occur in Africa. Between 2015 and 2050, the populations of 28 African countries are projected to more than double. By 2100, the populations of five SADC countries are projected to increase by at least five-fold: Angola, Democratic Republic of Congo (DRC), Malawi, United Republic of Tanzania, and Zambia. During 2015-2050, half of the world's population growth is expected to be concentrated in nine countries, and two of these are SADC countries: the DRC and Tanzania.

The role of fisheries in food and nutritional security has not been well documented in the region for a range of reasons, including the difficulties in acquiring adequate and appropriate data and information.

The role of fish in food security can be placed in a situation in which all households have both physical and economic access to adequate amounts of fish for all members, and where households are not at risk of losing such access. The people who are most susceptible to food insecurity are those living in rural areas, including fishing and fish farming communities.

The value chain in small-scale fisheries is often driven by local circumstances. Fishing vessels form the base of the chain, with primary and secondary processing done in onshore processing facilities, where the finished products are directly exported to wholesalers or to retailers. Women are involved predominantly in post-harvest activities as fish processors in formal processing (employed in land-based units) and informal processing (including smoking and salting,

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among other things). Women have an important role in fish trade in countries like Angola and Mozambique and, in particular, it is reported that a number of women go to sea to fish or harvest intertidal resources for basic food consumption, livelihoods and income.

The role of small-scale fisheries in food security can be divided into five main contributions: (i) direct and (ii) indirect contributions to household food security; (iii) direct and (iv) indirect contributions to domestic markets (local and national levels); and (v) contributions to international (worldwide) food security.

## Exports, imports

The fisheries sector in the region contributes an average of about 2 per cent to the SADC gross domestic product (GDP), with total average exports worth US\$152 mn, and average imports of US\$100 mn. The sector employs an average of 145,000 people; more than 1 mn people benefit indirectly from this. The per capita fish consumption in the region is 11

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Table 1: The contribution of fish to food and nutrition security in SADC by country

Country	Contribution of fish to food and nutrition security
Angola	Per capita fish consumption: 16 kg, i.e. 8 per cent of the total protein intake and 26 per cent of the total animal protein intake.
Botswana	Per capita fish consumption: 3 kg. Contribution of fish to total protein and total animal protein intake: 1 per cent and 3 per cent, respectively, both below the regional averages.
Democratic Republic of Congo	Per capita fish supply: 6 kg . Although contribution of fish to total protein is low at 6 per cent, fish constitutes 39 per cent of the total animal protein intake, amongst the highest in SADC.
Eswathini	Per capita fish consumption: 2 kg, about 1 per cent of the total protein intake and 3 per cent of the total animal protein intake, well below the regional, continental and world averages.
Lesotho	Data not available.
Madagascar	Per capita fish supply and consumption and the contribution of fish to protein intake are all below the regional average, estimated below 5 kg.
Malawi	Per capita fish consumption: 8 kg, which accounts for 28 per cent of the total protein intake.
Mauritius	Per capita fish consumption: 23 kg, which accounts for 8 per cent of the total protein intake and about 17 per cent of the total animal protein intake.
Mozambique	Per capita fish consumption: 9 kg, which makes up 40 per cent of the total animal protein intake and 5 per cent of the total protein intake.
Namibia	Per capita fish consumption: 12 kg, which constitutes 5 per cent of the total protein intake and 14 per cent of the total animal protein intake.
Seychelles	Per capita fish consumption: 59 kg , the highest in SADC. This constitutes 22 per cent of the total protein intake and 48 per cent of the total animal protein intake.
South Africa	Per capita fish consumption: 6 kg, which is below the regional, continental and global average. This constitutes 2 per cent of the total protein intake and 5 per cent of the total animal protein intake.
Tanzania	Per capita fish consumption: 6 kg, which constitutes 4 per cent of the total protein intake and 22 per cent of the total animal protein intake.
Zambia	Per capita fish consumption: 7 kg per person, constituting 4 per cent of the total protein intake and about 20 per cent of the total animal protein intake.
Zimbabwe	Per capita fish consumption: 3 kg person, constituting about 2 per cent of the total protein intake and 7 per cent of the total animal protein intake.

Source: The role of fisheries in food and nutrition security. Centre for the Coordination of Agricultural Research in Southern Africa (CCARDESA) (2016)

kg, which constitutes an average of 16 per cent of the total animal protein intake and 5 per cent of the total protein intake. This shows the significance of fisheries' contribution to nutrition and food security in the region.

Fish are a particularly important source of protein for several African countries—especially for poorer segments of the population—and, therefore, plays an important role in improving Africa's food security and nutrition status. In small island developing states (SIDS), such as the Seychelles and Mauritius, per capita fish supply is among the highest in the world. Although humans cannot live on fish alone, small quantities of fish in human diets can make a decisive difference to health, including the development of brain, bone and muscle tissue, prevention of blindness, preventing ailments like heart attacks and cancer, and mitigating the effects

of HIV/AIDS. Fish are highly nutritious, rich in essential micronutrients, minerals, essential fatty acids and proteins, and represent an excellent supplement to nutritionally deficient cereal-based diets.

According to the Centre for Coordination of Agricultural Research and Development in Southern Africa (CCARDESA), fish can increase food and nutrition security in the SADC region. For instance, regular consumption of small fish species existing in the region plays a critical role in providing micronutrients, especially when consumed whole with bones, heads and internal organs, where the micronutrients are concentrated. These species include *arenque* (*Clupea harengus*), *dagaa* (*Rastrineobola argentea*), *kapenta* (*Limnothrissa miodon*), *matemba* (*Barbus paludinosus*), *sardines* (*Sardina pilchardus*), *usipa* (*Engraulicypris*) and



Women processors at Ngwalu Beach, Salima district, Malawi. There is a strong link between food security, good nutrition and gender. People's overall access to food relies, to a great extent, on the work of rural women.

*utaka (Copadichromis)*. Hence, there is a need to devote more attention to fish in food policies due to its importance in the food basket, its unique nutritional properties, and its higher efficiency of production and low carbon footprint compared to other forms of animal production systems.

There is a strong link between food security, good nutrition and gender. People's overall access to food relies, to a great extent, on the work of rural women. The economies of SADC countries are largely agrarian, with agriculture playing a significant role in socioeconomic development. In the SADC region, women contribute more than 60 per cent of total food production and provide the largest labour force in the agriculture sector (fisheries being a sub-sector of the agricultural sector). In some member states, women perform more than 70 per cent of the work in agriculture.

Inter-regional fish trade plays a key role in the socioeconomic development of SADC countries. Women in small-scale fisheries play a key role and make major contributions in the regional fish trade. Women feature significantly in informal trade. It is estimated that 70 per cent of informal cross-border traders in the SADC region are women and

30-40 per cent of the trade within the SADC region comes from informal cross-border trade. Data on employment in the fisheries sector in SADC is available for a few countries and disaggregated data is available for only two nodes of the value chain, namely, fishers and processors.

### Invisible women

Despite their important role in fisheries and fishing communities, women's contributions are often rendered invisible or seen as an extension of domestic work, resulting in their exclusion from the discourse around fisheries. A recent study found that women play an important role in the small-scale fish-value chains, and their involvement has differentiated outcomes at individual, household and community levels. In addition, engagement has brought more positive outcomes for women. Intra-household relations improved as a result of women participating in value-chain activities. A significant household-scale finding surfaced in both cases regarding gendered roles and relations in decisionmaking, including strategic decisions related to food and nutrition provisioning. Through their involvement in value-chain activities, women play an important role at the

household level, generating income used for food and nutrition.

The gender agenda to advance the interests of women at various levels is acquiring greater attention within organizations. In the small-scale fisheries sector, the mechanisms for co-ordination and organization of women include fish trade and processor associations. These groups are used as a means of engaging in policy dialogue. They offer platforms for trade partnerships and linkages and also exchanging relevant knowledge on fish processing, handling and packaging techniques. They promote an entrepreneurial culture among women. The SADC secretariat worked in partnership with the WorldFish Regional Office for Southern Africa, based in Zambia, in a project titled 'Improving Food Security and Reducing Poverty Through Intra-Regional Fish Trade' (called the Fish Trade project). Implemented between 2013 and 2017, it supported the development of 11 harmonized fish quality standards for the SADC region. These standards are helping to build capacities for trade among private sector associations, particularly women fish processors and traders, to make better use of expanding trade opportunities through competitive small and medium-scale enterprises.

### Overcoming challenges

A number of women-led associations and networks in small-scale fisheries benefitted from this intervention. Of interest within the SADC region are Kafue Women Fish Processors' Association and Lotuno Enterprises Ltd. in Zambia, to mention just two. The groups were supported with storage facilities to prolong the shelf life of fish products, and educated with strategies to overcome challenges within the fish trade business and adopt hygienic ways of handling fish. The standards, especially for fish sausages and fish snacks, have helped the women processors' association to improve processing and to negotiate markets outside Zambia.

Specialists in fisheries debates have been concentrating predominantly on questions of biological sustainability and on the economic efficiency of fisheries, neglecting issues linked to its contribution to reducing hunger and malnutrition and to supporting livelihoods. Most regional non-fishery

food security experts and decision makers seem unfamiliar with these facts and, therefore, unaware of fisheries' critical role now and in the future. Fish has so far been only marginally included in the regional debate. Many nutritional programmes are still neither aware of it nor are they recognizing and building on the potential of fish for the reduction of micronutrient deficiency.

According to the outcome of the 2013 SmartFish study, titled "Flavoring Fish into Food Security" by Kurien and LopezRios, this lack of integration of fisheries in the food security policy scenario is attributed to the low participation, if any, of national fishery officers in the design of policies. Fish deserves more attention in food policies than it currently receives, given its importance in the food basket, its unique nutritional properties, its higher efficiency of production and lower carbon footprint compared to other forms of animal production systems. Some of the challenges that need addressing include making fish more affordable for the poor, improving the environmental sustainability of the sector, access to fish and fish-related employment, resolving the tensions between small-scale and commercial producers, and climate change.

Despite women's significant contributions in small-scale fisheries and their role in food security, they face a number of challenges. These include the lack of storage infrastructure, from the landing beach to the borders; harassment by customs officials at the borders; confiscation of fish due to lack of proper documentation for those involved in fish exports; and lack of an enabling environment for fish processors and traders to sell fish across borders, especially to access formal markets within the region. These need to be addressed as a priority. 

### For more

<https://www.sadc.int/>  
**The Southern African Development Community (SADC)**

<http://www.fao.org/3/ca7343en/CA7343EN.pdf>

**Africa Regional Overview of Food Security and Nutrition 2019: Containing the Damage of Economic Slowdowns and Downturns to Food Insecurity in Africa**

# Participatory Fisheries Management Revisited

There are several governance reform challenges and prospects for the management of fisheries resources in Malawi's Lake Malombe and Southern Lake Malawi

**P**articipatory fisheries management (PFM), as widely understood in Malawi, is a governance type that entrenches participation of the user community in fish resource management. In PFM, the Department of Fisheries (DoF) and the fishing community are key partners who, in an ideal situation, agree on shared roles and responsibilities, and formulate the goals, objectives and strategies of a particular management regime. Of paramount importance to the process is the point that the government recognizes the rights and responsibilities of the local community to the appropriation of the resource. The local community should also have the ability to make management decisions on which resource to manage, who ought to be involved in the management, and size of the area where the resource is located. The PFM partners should develop a management agreement outlining shared roles and responsibilities between the government and the community. The roles and responsibilities may include the formulation and implementation of plans and rules; imposition of sanctions on illegal fishers; capacity building; policy formulation; and building participatory monitoring and evaluation systems.

In Malawi, the PFM strategy involves mobilization of the fishing community into representative user groups called 'beach village committees' (BVCs) that are responsible for controlling all fishing activities on a particular beach. A BVC, as defined in the Fisheries Conservation and Management Act (FCMA)

of 1997, refers to all people involved in fishing-related activities such as fishing, processing, fish trading and boatbuilding. A BVC subcommittee is composed of office bearers. This is unlike the initial understanding of a BVC, which was like a group of 10-12 elected office bearers on a beach charged with the responsibility of managing a resource. The FCMA provides for empowerment of the BVCs in terms of enforcing regulations, including closed seasons, gear and mesh restrictions, closed areas and licensing of gears; authorizing both small-scale and commercial fishers to land on their beach; and maintaining beach registers containing information about counts on registered fishing vessels, gears, gear owners and fishworkers.

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The Lake Malombe PFM started on a pilot scale in 1993 after the *chambo* (*Oreochromis* sp.) fishery had collapsed, as reported by the Food and Agriculture Organization of the United Nations (FAO) in its Chambo Research Project, which was implemented from 1988 to 1990.

## Willing participation

The fishers also recognized the problem, as evidenced by their willingness to participate in the management of

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the fisheries when an initial survey was conducted by Bell and Donda in 1993. In its operational guideline, BVCS represent the local fishers. Unlike in other sites, the Lake Malombe PFM has benefited from various donor agencies, including the Department for International Development (DFID) through the Fisheries Research and Management Support Project (FRAMS)

### The Lake Malawi South PFM started with the formation of 'beach management groups' (BMGs) from 1997 to 2000...

from the early 1990s to the late 1990s, the Germany Technical Co-operation (GTZ)-funded Malawi-Germany Fisheries and Aquaculture Development Project (MAGFAD), from 1988 to 1998, and its follow-on, the National Aquatic Resource Management Programme (NARMAP), from 1988 to 2002, and the World Bank-funded Fisheries Development Project, from the 1990s to 2000.

The Lake Malawi South PFM started with the formation of 'beach management groups' (BMGs) from 1997 to 2000, which were later transformed into BVCS, between 1999 and 2002, during the NARMAP implementation period. Since then, the Government of Malawi has solely implemented the PFM activities on Lake Malombe and Southern Lake Malawi, with some governance reforms that mainly focus on decentralization. It is envisaged that the establishment of the BVCS demands an enabling operating legal environment, with associated constitutions and bye-laws for proper functioning. It is in view of this requirement that the Mangochi District Assembly, in conjunction with the DoF, set up a fisheries bye-law formulation task force, chaired by a magistrate. The mandate of the task force was to formulate widely agreed-upon fisheries bye-laws through consultations with all affected parties, including the fishing communities in the fisheries sector of Mangochi District. Such efforts that the district assembly spearheaded were necessary, since the final output

reflects popular local views and aspirations, thereby setting the stage for legitimacy and ownership for enforcement of the bye-laws.

While PFM largely involves the user community and government, what is forgotten is the role of other stakeholders, for example, non-governmental organizations (NGOs) or civil society groups. With the advocacy on decentralization and good governance, it is imperative to include other stakeholders in PFM, taking into account participatory democracy, transparency and downward accountability. With respect to this assertion, which is in accordance with the ideology of decentralized fisheries management, the PFM on Lake Malombe and Southern Lake Malawi recognized the need to have the Mangochi District Assembly in the PFM implementation process.

This article reviews the progress of PFM on Lake Malombe and Southern Lake Malawi. A major focus is on the review of the implementation of the PFM and an examination of the governance reforms, with particular emphasis on how district assemblies are involved in the management process. This is based on secondary sources, specifically on the ongoing BMZ-GTZ-funded project, Food Security and Poverty Alleviation through Improved Valuation and Governance of River Fisheries in Africa.

The capture fisheries subsector provides an economic activity and livelihood for the lakeshore-based segment of Malawi's population. A recent (2005) survey by DoF showed that nearly 60,000 people are directly dependent on small-scale fishing activities. The majority of them are also engaged in fish trading and other ancillary industries such as boatbuilding and maintenance, net manufacturing and servicing of boat engines while yet others are employed in commercial fishing units.

#### Direct support

In Mangochi District, fishing activities on Lake Malombe and Southern Lake Malawi directly support nearly 20,000 small-scale fishers, and over 150,000 household members are involved in fishing, processing and trading activities. The national fish landings, which peaked at over 80,000 tonnes

per annum in the late 1980s, are now between 50,000 tonnes and 60,000 tonnes per annum, according to the 2007 analysis of catch trends by the Malawi Fisheries Research Institute (MAFRI). The catches from Lake Malombe and Southern Lake Malawi have, however, declined by over 30 per cent, from 29,000 tonnes in 1989. This is largely due to various reasons such as overfishing, the open-access nature of the fisheries, increased population growth, and weak enforcement capacity. The fish production of 1,900 tonnes from the commercial sector in Southern Lake Malawi dropped by around 50 per cent from the 1976 catch. However, the catch estimates for 2006 and 2007 for both fishing water bodies show a remarkable increase in catches to over 30,000 tonnes.

Observations indicate that the increase can be attributed to three main factors, namely, the response of fishers to localized overfishing reported in the shallow waters of the lake; migration; and the promotion of offshore deep-water fishing. On Southern Lake Malawi, the small-scale fishers venture into offshore deep-water fishing with modified fishing gear types like *kwandwindwi* (a form of beach seining by small-scale fishers based on a mechanized trawling technology) and *mbuka* (deep-water gillnetting). The operators have also, in response to the low fish catches, migrated to the eastern side of the southeast arm of the lake, where the numbers of fishers and gears have, in the past, been low due to the distance of markets from the landing centres. The DoF has, in recent years, been promoting offshore deep-water fishing for the small-scale fishery to exploit about 30,000 tonnes of underutilized deep-water fish stocks. Ironically, the catch trends on Lake Malombe alone still do not show any remarkable increase. The catches have, since the 1990s, been fluctuating between 3,000 tonnes and 4,000 tonnes, while, in the late 1970s and 1980s, they were around 8,000 tonnes per annum.

To address the problem of declining fish catches, the DoF adopted the PFM approach in the early 1990s. The main reason was to involve the resource users in the formulation and enforce-



Fishermen of Lake Malombe. Participatory fisheries management in Malawi involves mobilization of the fishing community

ment of fisheries regulations, thereby improving compliance, which was then low. To a certain extent, the management regime would also address the problems of resource ownership, definition of incentives, popular participation principles and clear assignment of roles for various participating groups. The government approved the PFM approach with objectives and roles of the user community as stipulated in the National Fisheries and Aquaculture Policy (NFAP) of 2000 and Fisheries Management and Conservation Act of 1997.

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However, despite the long implementation period of nearly one-and-a-half decades, PFM does not appear to have contributed to fish stock recovery, especially for *chambo* (*Oreochromis* sp.) on Lake Malombe and Southern Lake Malawi.

#### **Power struggle**

Previous evaluation studies have shown several setbacks especially in terms of power struggle between user-group representatives (BVCS) or subcommittees and local leaders; unclear roles of various stakeholders; weak capacity

to enforce fisheries regulations; and sectoral compartmentalization in the management of fisheries resources. Consequently, a broad-based PFM arrangement that takes into account governance, popular participation and accountability within a decentralized framework, which enables the user community to identify their needs

### The chiefs presented a problem on power shifts from the traditional authorities to magistrates.

and prioritize solutions, is being advocated.

After a decade of implementing the PFM on Lake Malombe and Southern Lake Malawi, questions abound as to whether progress has been registered and whether it is justifiable to continue with the PFM arrangements, and, finally, how the initial design of the PFM fits into the decentralization framework, a governance reform that promotes transfer of administrative and political authority from the central government to local government, introduced in 1998 as part of the government's decentralization policy.

Therefore, the DoF called for a stakeholders meeting in 2004, with the participation of the Mangochi District

Assembly, including two traditional chiefs and a magistrate.

The meeting highlighted the weakness of the DoF in terms of its failure to enforce fishing regulations, as it appeared to have abrogated its enforcement function to the BVCS. The meeting blamed the DoF for its laxity on law enforcement, believing that PFM could address non-compliance problems. The stakeholders identified other specific issues:

- With lack of bye-laws and devolved functions, there was no basis for assemblies to participate in fisheries enforcement activities.
- The chiefs presented a problem on power shifts from the traditional authorities to magistrates. They indicated that when co-management started (between 1993 and 1997), the chiefs and village heads had powers to impose sanctions on law breakers by charging fines up to K20,000 (about US\$50 then). To a certain extent, the imposition of such fines served as a deterrent to continued rule breaking, and fishers could respect the local leaders. Since then, however, the practice has been legally discouraged as the chiefs are no longer mandated by law to impose sanctions and charge fines.
- As for the Fisheries Conservation and Management Act of 1997 and the Fisheries Conservation and Management Rules of 2000, the meeting noted gaps in the regulations, relating to, for example, closed seasons for commercial operators, restrictions of some emerging destructive gear types (for example, *kandwindwi* and *kauni*), and minimum catch sizes for fish species other than *chambo* (*Oreochromis* sp.) and *mpasa* (*Opsaridium* sp.), closed areas, and regulating access to the fishery.
- The Mangochi Fisheries Management Association (MFMA), BVCS, and chiefs appeared not knowledgeable about their roles. This was the basis for corrupt tendencies on some beaches where the BVCS and some local leaders allowed illegal fishing operations.
- Lack of capacity for BVCS to perform their work due to unavailability of funds and other resources, since

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Fishing in Lake Malombe. Around 20,000 small-scale fishers depend directly on the lake's resources

the Fisheries Fund from which they could benefit was not yet established as stipulated in the Fisheries Conservation and Management Act.

- The DoF was encouraging the *nkacha* fishers to illegally operate in Lake Malawi by licensing the seine-nets and recording catch data from the seines.
- The magistrate courts were encouraging repeated illegal fishing operations due to the low penalty fees that they charged for offences.

As a way forward, the meeting participants asked the DoF to continue enforcing fishing rules. In addition, they agreed that the assembly should develop and enforce fisheries bye-laws since it was learnt that the DoF was centrally enforcing regulations that were, in most cases, not appropriate for sustainable exploitation of the fisheries resources.

The bye-law development process is long and needs a lot of money, time and human resources. The principle guiding the process is that a wider participation of stakeholders in decisionmaking is necessary to ensure inclusiveness in terms of inputs from rival user groups as, for example, between small-scale and commercial operators or between the DoF and operators.

A series of meetings on the bye-law formulation process led to the election of a task force on 19 March 2005, chaired by a magistrate. The task force guided the bye-law development process through the following proposals to address fisheries management and governance:

- Include a district fee, as suggested in Sections 59 (1) and 59(3) of the Fisheries Conservation and Management Act.
- Address perceived gaps in the fishing regulations, especially on closed seasons, mesh and gear restrictions, closed areas and failure to regulate entry.
- Clarify the roles of stakeholders like the Local Fisheries Management Authority (LFMA), chiefs, assembly, fishers and the DoF.
- Clarify the difference between corruption and tribute, locally called *mawe*, and also assess whether informal rules that the local communities

apply on their beaches contribute to resource management or encourage corruption.

The methodology for primary data collection included participatory approaches, with focus-group discussions as the major field collection tools. Secondary data collection involved the use of field reports, published and unpublished research papers by the DoF, and socioeconomic reports from the District Assembly.

The task force drew up a list of target groups for consultations. Meetings were scheduled with commercial operators, small-scale fishers located at several selected beaches along the fishing water bodies, Traditional Authorities (TAs) and Group Village Heads (GVHS), and Area Development Committees (ADCs). It was found that through the bye-law formulation process, there is a broader understanding of clear roles that various stakeholders should play. Firstly, due to the wider participation in the bye-law process by the fishers, households and traditional leaders, there is an increased legitimacy of the laws. Secondly there is an improved

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understanding of fishing rules by the judiciary, which results in high penalties and other associated procedures such as penalizing both the crew and fishing-unit owner. Thirdly, the bye-law formulation process increased understanding of the policy and legislation initiatives of the DoF since, at each stage, the bye-law formulation task force made references to the National Fisheries and Aquaculture Policy of 1999, the Fisheries Conservation and Management Act of 1997 and Fisheries Conservation and Management Rules of 2000. Finally, there is support for enforcement activities by the community and the marine police.

The bye-law formulation process is a further step towards implementation of PFM, which started over a decade

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Participatory fisheries management in Lake Malombe began in 1993

ago. However, the following steps remain crucial to improved governance and management of fisheries resources in Malawi, especially on Lake Malombe and Southern Lake Malawi, where PFM does not appear to have significantly contributed to any resource regeneration:

- gazettement the by-laws after approval of the full Assembly, with democratically elected councillors;
- working out a cost-effective implementation mechanism;
- finalizing management plans for Lake Malombe and Upper Shire, Southeast Arm and Southwest Arm;
- developing and signing management plans;
- registering the local fisheries management authorities with the Office of the Registrar General; and
- establishing a Fisheries Fund for benefit sharing. ¶

#### For more

<http://www.fao.org/docrep/005/T0783E/T0783E00.htm>

#### CIFA Technical Paper

<http://www.fao.org/fishery/rfb/cifaa>  
**Committee for Inland Fisheries and Aquaculture of Africa**

<http://www.fisheries.ubc.ca/grad/abstracts/ensikuab.pdf>  
**Changes in the Fisheries of Lake Malawi, 1976 - 1996: Ecosystem-based Analysis (MSc thesis)**