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Fishing Livelihoods and Fisheries Management in Malawi

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Edward H. Allison and Peter M. Mvula

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ABOUT LADDER

LADDER is a research project funded by the Policy Research Programme of the UK Department for International Development (DFID) that seeks to identify alternative routes by which the rural poor can climb out of poverty. LADDER is working with nearly 40 villages and 1,200 households in Uganda, Tanzania, Malawi and Kenya to discover the blocking and enabling agencies in the institutional environment facing rural people that hinder or help their quest for better standards of living for themselves and their families.

This working paper represents work-in-progress and the reader is advised that it has not been subjected to academic quality control, nor edited for errors of fact or interpretation. The paper forms part of a mosaic of research findings that will contribute towards an overall picture of rural livelihoods and micro-macro links to poverty policies in the case-study countries. The findings and views expressed here are solely the responsibility of the authors and are not attributable to DFID.

All available Working Papers and Village Reports can be downloaded from the project website: http://www.uea.ac.uk/dev/odg/ladder/, which also details other information about the project. For any further enquiries, please email j.mims@uea.ac.uk.

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Edward H. Allison and Peter M. Mvula*

Summary

Livelihoods studies based in five villages on the shores of Lakes Malawi and Chilwa reveal fisheries to be an important contributor to poverty alleviation and rural economic growth in lakeshore areas. The incomes and asset status of households involved in fishing, particularly those of boat and gear owners, are significantly higher than those of non-fishing households in the same villages. This suggests that the common association between fisherfolk and extreme poverty is misplaced. Rather, fishing provides one of the few viable non-farm income-generating strategies in rural Malawi. Furthermore, and in contrast to agriculture, the marketing of fish in Malawi does not suffer from problems of monopoly or market failure in remote areas. The mobility of fisherfolk is a key element in maintaining the success of the marketing chain. There has never been a state fish marketing board analogous to ADMARC, and small-scale private sector fish traders represent a good example of entrepreneurship in rural Malawi. Attempts to interfere with these marketing chains, such as through centralisation, are misplaced.

The vulnerability of fishing households remains high, however. Increasing land pressure and the loss of livestock from the traditional 'tri-economy' of cattle, crops and fishing means that investments are instead increasingly directed either back into the fisheries sector, with concerns for resource sustainability and vulnerability to natural fluctuations in fish stocks, or into businesses closely related to the continued viability of fishing, such as shops and bars in fishing villages, or fish trading. Thus, fishing households' dependency on fishing may be increasing with the decreasing viability of agricultural livelihood opportunities.

Although total fishing pressure is limited by the number of people able to invest capital in the sector (and feedbacks between resource decline and willingness to invest provide some measure of economic control that limits overexploitation), growing population and diminishing alternative opportunities raise concerns of over-investment of capital and labour in fishing leading to resource decline, and in extreme cases, collapse (e.g. Lake Malombe). The introduction of controls and limitations on access to fishery resources has recently been proposed in response to these concerns. The principal mechanism for these controls is through community-based organisations called Beach Village Committees, which operate in partnership with the Malawi Government Department of Fisheries. There are several well-known problems with BVCs, confirmed through this research. These centre around the clash between the principle of territorial exclusion espoused by the community-based fisheries management approach and the traditionally mobile fishing strategies of many fisherfolk, and associated flexible and

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reciprocal access arrangements worked out between different lakeside villages and landing sites. The powers of BVCs have also proved to be open to abuse by local elites.

Recommendations for policy support to maintain or enhance the contribution of fisheries to rural development include continued support to more genuinely participatory and locally designed fisheries management institutions and design of a taxation and rural service environment conducive to the restoration of agriculture, particularly livestock keeping, as a key component of fishing households' incomes. Targeted social services (health and sanitation, HIV/AIDs education, savings facilities) for migrant fisherfolk, who are currently relatively cash-rich but largely excluded from these provisions, may pay dividends in terms of enhanced productive expenditure of the income they generate. The NGO sector in Malawi, including religious institutions, do little work with fisherfolk, and could provide one way of implementing these services and thereby ensuring that income generated from fishing is used towards wider productive development.

Introduction

Inland fisheries in Africa provide a major source of subsistence and income to many African countries. Despite the increasing importance of inland fisheries over the last forty years (Geheb and Sarch, 2002), there are few studies that investigate the role of inland fishing in the livelihoods of rural people in Africa.

Fisheries studies in Africa, as elsewhere, have tended to concentrate on using aggregate production statistics to assess resource status against production-orientated target reference points (see Box 1). In recent years, responding to increasing fishing effort, these studies have tended to recommend the limitation of fishing activities in order to prevent unsustainable resource use (FAO, 1996; Geheb and Sarch, 2002). Earlier emphases on increasing fisheries production through modernisation and industrialisation have largely been abandoned (Allison *et al*., 2002), except in a few areas where underutilised resources unavailable to artisanal or small-scale fishers are thought to exist (e.g. the offshore waters of Lake Malawi; Seymour, 2001).

Previous surveys of poverty in Malawi, such as the Integrated Household Survey (IHS) of 1997 and 1998 (NEC, 2000), have not included households involved in fishing and related activities, so that national-level generalisations about poverty and livelihood change and adaptation in rural areas are not readily applicable to understanding the particular circumstances of fisherfolk. In a country that has an apparently high nutritional dependency on fish[1], and of which one-fifth of the surface area is covered by water, the lack of studies of the role of fishing and fish trading in the wider rural economy is also a significant omission. This paper is a contribution towards bridging the current gap between fisheries and rural development studies in Malawi.

The paper first sets out the policy arena for the management of small-scale fisheries in the context of poverty eradication, it then goes on to identify key policy-related questions with respect to fisheries in Malawi and describes how a livelihoods research study was designed to address these questions. The results of this study provide the main empirical content of the paper; they address the poverty-status of households involved in fishing around Lakes Malawi and Chilwa and describe the strategies these households pursue in putting together a livelihood. The availability of studies of the socio-economy of the Lake Chilwa Plain in the late 1960s (Kalk *et al*., 1979) allows some analysis of major livelihood changes in southern

Malawi over the last 35 years. We also emphasise the impacts on fishing-based livelihoods brought about by the shift, over the last 5 years, from central-government control towards localised fisheries co-management. The paper concludes with policy implications and possible development processes or entry points for intervention in support of sustainable fisheries-based livelihoods.

Poverty and fisheries development and management: a review of themes and concerns

For the last 40 years, conventional narratives have suggested that fisherfolk are, on average, poorer than other rural dwellers. It is often stated that in areas with access to coasts, lakes, rivers and floodplains, the rural poor turn to fishing if they have no land to farm, no capital to invest in business, no skills to sell, and insufficient education to pursue urban-based livelihoods. Fisheries are thus often characterised as an 'occupation of last resort', and fisherfolk classed as 'the poorest of the poor' (Smith, 1979; Christy, 1986; Pauly, 1997). An image of small-scale fisherfolk in developing countries as being trapped in poverty has prevailed among fisheries development and management agencies, as this quote from an FAO report illustrates:

> *"Lack of occupational and geographical mobility may result from long isolation, low formal education, advanced age, preference for a particular way of life, cultural taboos, caste restrictions, inability to liquidate one's assets, indebtedness or just lack of knowledge and exposure to opportunities. The consequence of immobility is that fishermen may continue fishing even if they earn far less than their opportunity costs.*
>
> (Panayotou, 1982; p20)

A further dimension of poverty and vulnerability in fishing communities lies in the common perception of fisherfolk's dissolute lifestyles. Tales of habitual drunkenness and expenditure of substantial portions of their cash income on beer and prostitutes (and consequent high risk of being infected with and spreading HIV/AIDS) abound both in the literature (e.g. Hemrich and Topouzis 2000) and in the discourses of fishery officials. Women in fishing communities are thought to be particularly vulnerable to discrimination and neglect.

Fisherfolk are thought to be poor because their poverty causes them to overexploit their resources. The usual explanation for the overfishing (see Box 1) of developing countries' coastal and inland fisheries has been thought to result from the irreversible flood of the rural poor into 'open-access' fisheries, resulting in increased fishing effort, declining resources and catch rates and the eventual dissipation of resource rents. Furthermore, the fact that this influx comprises 'non-traditional' entrants to the fishery (i.e. those with no intergenerational interest in the sector) is thought to have undermined traditional forms of aquatic resource management. This whole process has been termed 'Malthusian overfishing' (Pauly, 1997).

There is, however, a growing recent literature that suggests a rather different picture. For example, a recent FAO review of marine coastal artisanal fisheries (Teitze *et al*., 2000) concluded that:

- In many cases, the number of fishers in coastal areas in decreasing, not increasing due to general population growth, as is usually assumed.
- Incomes of fishing households are significantly higher than those of farming households in the same district in five of six countries studied by FAO (including, in Africa, Tanzania and Senegal).
- Both the amount saved and saving rates are higher for fisherfolk than for agriculturalists.

- Women are significantly involved in income-generating and food-providing activities in fishing villages
- Fisherfolk have responded dynamically to reduced opportunities in fishing and increased opportunities elsewhere. Fisherfolk are not nearly so occupationally immobile as Panayotou (1982) suggested.

It is against this divergent and unresolved view of the socio-economic status of artisanal fisheries and the real causes of fishery decline in developing countries that this study takes place. In Malawi, with the exception of the Lake Chilwa study in 1966-69 (Kalk *et al*., 1979) and some sectoral studies of fisherfolk's incomes in southern Lake Malawi (FAO, 1993) it is only in the last two years that work directed specifically towards investigating the role of fishing in lakeshore economies and the nature of fisheries-based livelihoods has begun (Allison *et al*., 2001a, b; Ganter, 2001a, b; Mvula, 2002).

In the light of the orthodox narrative of 'Malthusian overfishing', described earlier, the usual fisheries policy response of most developing countries, including Malawi, has been to focus on designing barriers to entry to fisheries (see Box 1 for further details) in order to conserve the resource base and maximise yields or economic rents. The current international fisheries policy framework emphasises 'responsible fisheries', which inevitably means introducing limitations or measures to downsize operations in the fisheries sector. The key task in fisheries management is seen as ending the open-access nature of fishing and introducing 'rights-based' approaches. This imperative has coincided with the general trend towards devolution of power and administrative responsibilities to local level and the partial or total withdrawal of the state from direct fisheries management (Allison, 2001).

In developed countries with industrialised fisheries, the transition to rights-based fishing has centred on the introduction of various instruments granting private rights to fish. In LDCs, it is the community - rather than the individual or firm - that is widely seen as the unit in which to invest access rights to fish resources. Thus, as in other renewable natural resource sectors, fisheries policies have emphasised the introduction of community-based natural resource management (CBNRM), which can be defined as:

> *"Ideas, policies, practices and behaviours that seek to give those who live in rural environments greater involvement in managing the natural resources that exist in the areas in which they reside (be that permanently or temporarily) and/or greater access to benefits derived from those resources"*
>
> (Hulme and Murphree 2000)

Often, such communities are externally defined and identified and a critical analysis of the notion of 'community' has often been lacking (Allison and Ellis, 2001) leading to recent disenchantment with CBNRM programmes (Agrawal and Gibson, 1999). More typically in fisheries, the devolution of responsibility for management to communities or user-groups has been partial, with government and community-based organisations working in some form of partnership, known as co-management (Pomeroy and Berkes, 1997). In Malawi, where experiments with co-management dating back to 1993 have more recently received legal recognition in the form of a new Fisheries Conservation and Management Act (1997), there has now built up a critical body of scholarship around these early experiences (e.g. Hara et al., 2002; Njaya, 2002; Mvula, 2002). We return to consider the livelihoods implications of this shift in fisheries governance in a later section of this paper.

Despite several changes in emphasis, rhetoric and governance arrangements, the main thrust of fisheries policy in Malawi since the colonial period has been to maximise the sustainable supply of fish to consumers (Allison et al., 2002). The mode of production, and how the benefits of fishing-based income should be distributed have either been secondary to this aim, or not explicitly considered.

Technical input from donor projects and government into the fishery sector has so far centred on assessing the productive potential and sustainability of the resource, and developing monitoring and research systems, with some (sporadic) emphasis on modernisation of the catching, processing and distribution sectors (Seymour, 2001). In recent years, the World Bank, GTZ and other donors have complemented resource and production-focused work by investment in building fisheries management capacity, reorganising governance arrangements and improving policy (Allison et al 2002), but there is still little direct emphasis on social and economic welfare issues among fisherfolk or in villages engaged in fishing. These issues have typically been beyond the remit of fisheries agencies in most countries.

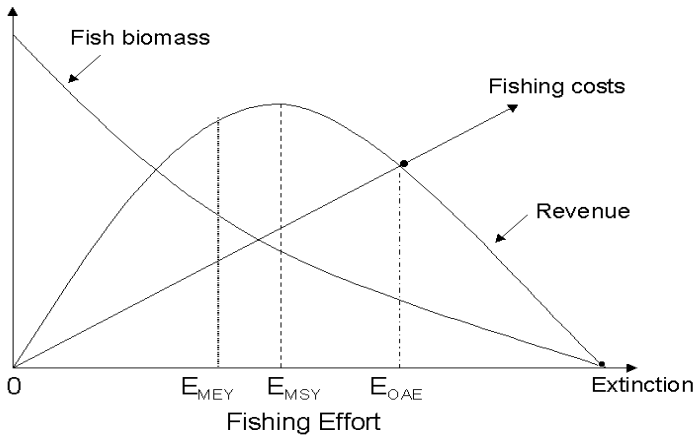
Fish resources are renewable, but not unlimited. Evidence for unsustainable harvesting rates of larger, more valuable species, is provided by the crash of the 'chambo' (*Oreochromis* species - a genus of tilapine cichlids) stocks of Lake Malombe a decade ago (FAO, 1993). Stocks of small pelagic and near-shore species that provide the bulk of the landings to the artisanal fishing fleets ('usipa', 'utaka', 'kambuzi') are not thought to be overexploited and not yet in need of precautionary management (GOM, 1999). Despite the policy emphasis on maximising production and continued increase in total landings (at least according to official statistics) maintaining the supply of fish to consumers from domestic production has proved impossible in the face of population growth. National per capita supply of fish has dropped from 12-18 kg/yr in the 1970s to around 6-7 kg/yr in the late 1990s, but fish remains a key item in the diet of Malawi's people. Fish accounts for between 6 and 7% of the cash expenditure on food by the poor in rural Malawi (rising to around 11% in the urban poor). This is the third largest, after cereals and vegetables, of the 14 food-group items identified in the 1997 and 1998 IHS survey (NEC, 2000, Table 40 p 86).

Malawi's fisheries sector is thought to constitute a major source of income and livelihood for more than 300,000 people (Ganter, 2001a), although these figures may not include part-time fishers and traders. The sector is complex and includes people at various levels from subsistence to industrial enterprise (see Box 2). In national economic terms, fisheries only account for 4 per cent of GDP, but their localised importance in parts of Malawi may be much more significant. It is this localised economic role that this paper investigates.

Box 1. The conventional theory of fisheries management

The basic requirement for sustainable capture-fisheries management is that at the end of each fishing year, sufficient spawning-stock of fish should remain in the water to sustain future harvests. The Gordon-Shaefer bioeconomic model and its derivatives quantify this principle (see below). This model proposes an equilibrium between catch and fishing effort, so that fishing effort can be regulated to achieve a maximum sustainable yield (F_{MSY}), maximum economic yield (F_{MEY}) and related targets. Mechanisms for regulating fishing effort include limiting the number and/or size of fishing vessels, the number of days for which they are allowed to fish, or a host of specific technical measures aimed at limiting the quantity of fish that can be caught. Further refinements include regulations that allow escapement of young fish until they reach breeding size, the protection of spawning habitats or aggregations and so on. Such regulation has, for the last 50 years or so, been primarily the responsibility of governments. Failure to regulate fishing effort is thought to lead to a situation where fishing effort tends towards the point where economic returns from the fishery equal the costs of exploiting the resource – the 'open access equilibrium' (F_{OAE}). If signals of resource scarcity are distorted or masked by subsidies to the fishing industry (in the forms of grants for modernising fishing technology, compensation for poor fishing seasons etc), then fishing effort can even exceed the open access equilibrium, possibly leading to stock extinction. In the African context, it is often suggested that, because of lack of alternative occupations, people will continue to fish beyond the open access equilibrium and drive stocks to biological extinction, although no empirical evidence supports this assertion (Allison, 2002).

Although the Gordon-Shaefer model provides an elegant and persuasive overview of how a fishery bioeconomic system works, it has been extensively criticised for failing to provide the basis for successful fisheries management. There are many practical difficulties with the model: it is difficult to identify the target reference points until they have been exceeded; it is difficult to dis-aggregate the models in fisheries where one stock is fished by many fleets, or one fleet fishes many stocks; and it is based on catch and effort data that are often unreliable (Hilborn and Walters, 1992). There are also difficulties with the equilibrium assumptions, particularly as many fisheries never reach an ecological equilibrium point and economic responses to resource changes are invariably time-lagged (rather than instantaneous as implied) or complicated by factors external to the fisheries sector. All these problems have led some to suggest that the model itself, as well as the fishery management systems that are built on its basis, may not be appropriate to some fisheries - particularly those that fluctuate extensively (e.g. Sarch and Allison, 2000). On top of these conceptual difficulties are the practical and capacity-related problems of enforcing the target reference points through coercive or punitive top-down methods of management. It is these latter problems that have led to the recent interest in various forms of participative fisheries management, such as community-based or government-community co-management systems.



Box 2. Definitions of fishery resource user groups in Malawi

Capture fisheries in Malawi are highly diverse, ranging from large stern-trawlers to hook and line and basket-trap fishing from the shore. Until recently, the Department of Fisheries has classified all fishing gears and methods into 'traditional', semi-commercial and commercial groups, for licensing and monitoring purposes:

Commercial -	All stern trawls including mid-water and demersal trawls operated by vessels with 90 to 380 hp; ring net and purse seine operations from vessels exceeding 90 Hp; and usipa lift nets
Semi-Commercial -	All pair trawls using vessels with 20-40 HP
Traditional -	All fisheries not in the previous two categories including: hook and line fisheries; fishing baskets, fish traps and psyailo; scoop nets; cast nets: beach seines; chirimila nets; nkacha nets; long lines and gill nets

The assumption has been that 'traditional' fishing has been subsistence in orientation, which has not been the case for at least the last 50 years (Allison *et al.*, 2002). The Malawi Fisheries Department and the National Aquatic Resource Management Project (NARMAP) have recently suggested retention of the three licensable categories of fisheries listed in the 1997 Fisheries Management and Conservation Act (FMCA): These are: Commercial, Subsistence and Recreational fisheries

Commercial fishers are those who utilise the fish resource primarily for monetary gain. This includes most of Malawi's fishers, including those previously included in the 'commercial', 'semi-commercial' and 'traditional' fisheries categories. Commercial fishers are further subdivided into various categories of 'Large-Scale Commercial' (trawlers and purse-seiners with inboard engines, not currently relevant to Lake Chilwa), 'Small-scale commercial' and 'aquarist'.

The most relevant category in this paper are the small-scale commercial fishers, defined as all fishers that use small engines, of less than 20 Hp, or no engine, to catch fish intended primarily for sale. A small-scale commercial fisher may be self-employed and/or employ outside labour to undertake the fishing operation. The sector uses a highly diverse assemblage of fishing gear including beach seines, open water seines, gill nets, fish traps and hooks. Gear types are used as the basis for subdivisions into operators using open water and beach seine nets, passive gears (traps, gillnets, long-lines etc) and active gears. The fishers in the latter category may be self-employed and seasonal and use at most a dugout canoe, with their catches seldom exceeding 5 kg per day. It may be difficult in practice to separate them from subsistence fishers.

Subsistence fishers: According to the FMCA "a person who fishes for subsistence fishes in order to provide, without payment therefore, food for himself and persons dependent on him including members of his community" (GOM 2000: 21-3). Since catch rates and household consumption rates are difficult to monitor, subsistence users are classified according to the fishing gear they use, typical of which are traps, pole and line, hand line, fishing baskets and spears.

Recreational fishers are those for whom the utilisation of the resource is solely for recreational purposes. At present, only trout fisheries in highland streams require a licence.

Small-scale commercial, subsistence and recreational fishers have full access to Malawian waters, while some restrictions apply to areas of access for large-scale commercial vessels, to minimise conflicts between large and small-scale sectors.

Source: Banda *et al.*, 2001.

Policy research questions: fisheries management and rural livelihoods in Malawi

The review in the previous section suggests that the key questions for policy research into fisheries livelihoods in Malawi are:

1. What role does fishing play in livelihood strategies in areas where this is an option (e.g. along the Lake Malawi shoreline, around Lakes Malombe, Chilwa, Chiuta and along the Shire river)?
2. What effects are reforms in fisheries governance, principally the shift towards co-management, having on practical fisheries resource management and on lakeshore peoples' abilities to build improved livelihoods?
3. Does income generated from fishing have a role to play in wider rural development and if so, what practical or policy support can maintain or expand this role?

Additionally, by focusing on a system known to undergo extreme climatic and physical environmental variations, the research into livelihoods at Lake Chilwa provides a case study in adaptation and resilience. Such as case is particularly valuable from the perspective of investigating institutional factors that constrain or enhance geographical mobility and livelihood diversification - two of the main strategies often proposed to reduce vulnerability of poor rural households. The availability of some baseline information for the region, from studies undertaken between 1966 and 1969, further makes possible an analysis of how people's livelihoods, resource use patterns and the rural socio-economy of the Lake Chilwa region have fared after 35 years of post-independence development in Southern Malawi.

This paper focuses principally on analysis of livelihoods at two study sites on Lake Chilwa, undertaken as part of the LADDER fieldwork programme, but in order to broaden its applicability, it also incorporates the principal findings from similar recent studies conducted in Southern and Central Lake Malawi, funded under the DFID Fisheries Management Science Programme (Allison et al., 2001a, b; Mvula, 2002).

Research Areas and Methods

Lake Malawi

Fish catches from the Malawian waters of Lake Malawi have fluctuated recently between 20 – 40 000 tonnes per year, with between 85 and 95 per cent of the catch coming from the small-scale commercial and subsistence sectors and the remainder coming from large and medium-scale commercial operations. The last ten years have seen an increase by more than 20 per cent in the number of small-scale fishing vessels – dugout canoes and plank boats. More than 53 000 people are involved directly in the catching or harvesting sector to varying degrees, with an estimated 20 000 employed in processing, marketing and fishing-related businesses such as boat-building and fishing gear-supply (Njaya and Chimatiro, 1999).

Three sites were selected for livelihoods studies along the shores of Lake Malawi (Figure 1): Msaka in Mangochi District (Southern Region), Lifuu in Salima (Central Region) and Tukombo in Nkhata Bay (Northern Region). This research was conducted during 1999/2000 mainly in the context of a project that looked at the relevance of territorial-based fisheries management for areas where fishing for pelagic species (*usipa* and *utaka*) was important, and was thus focused on areas known to be important for these species, which do in fact make up the bulk of landings to the small-scale commercial fishery from Lake Malawi (GOM, 1999).

In each village, a range of qualitative tools drawn from Rapid and Participatory Rural Appraisal (RRA/PRA) and institutional analysis were used to investigate how access to assets

is modified by social relations, institutions and organisations. These included wealth ranking, focus groups, key informant interviews, institutional mapping and ranking of organisations' effectiveness. Trends and shocks were analysed by documenting experiences described in focus group discussions.

Qualitative research was supplemented by quantitative household-level income and expenditure surveys. Forty households were selected in each of the three villages, giving an overall sample of 120 households. Sample selection was based on stratification following wealth ranking (based on people's self-defined criteria), to ensure that poorer households are included in the research. Based on people's own definition of wealth, three categories emerged, namely (a) the well to do (*wopeza bwino*), (b) the better off (*wopeza bwino pang'ono*) and (c) the poor (*wosauka*). Sampling was also stratified to include three major occupational groups: farmers, farmer-fishers (both gear/boat owners and labour providers) and migrant/settler fisherfolk. Further details of the methodology are reported in Mvula (2002).

Lake Chilwa

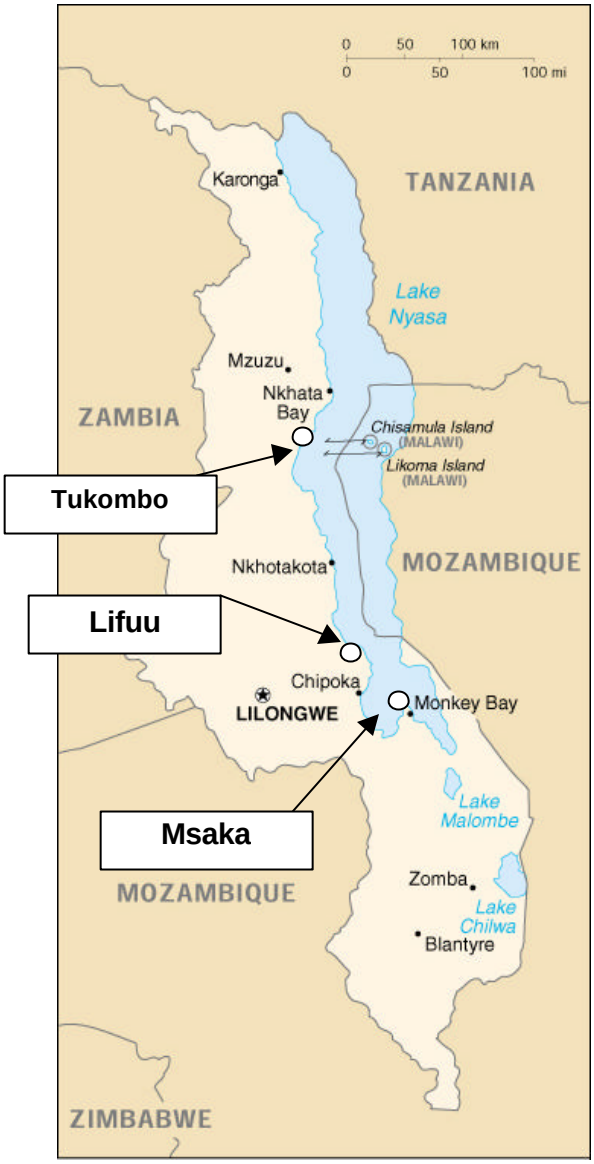
Africa's shallow lakes are among the most productive but variable fishery ecosystems in the tropics. The lake has recently fluctuated around 1850 km^2 including both open-water and wetland areas, is less than 3 m deep, and is subject to extreme fluctuations, including complete desiccation. In good years, fish catches can be as high as 25 000 tonnes (fishery statistics are rather uncertain and vary between sources) and more than 10 000 people are engaged in fishing activities. There was a major increase in fishing effort around the early 1970s, as the region became better integrated into the market economy. Minor recessions in lake level, sufficient to reduce fishing for one or two years, can be expected every six years or so (see Figure 2). Major recessions which will interfere with fishing in the open lake for 3-5 years can be expected every 60-70 years, with a possibility of an intermediate recession in 30-40 years (Lancaster, 1979). The last drying episode covered the period from late 1994 to 1996, when fishing ceased altogether. Fishing operations started again in April 1997 (GOM, 1999).

Two lakeshore villages in Zomba District were chosen for investigation of livelihoods (Figure 3) in 2001. Katanda village is under Group Village Headman Namasalima and is located in Matandani Ward, Traditional Authority Kuntumanje. It is approximately 3 km from the Chinese-funded Domasi Rice Scheme and some 15 km from Domasi Trading Centre. The area comprises a fish-landing site, Kuba, with related sub-village, composed mainly of migrating fishermen. Farming around the village comprises rice paddies, and mixed maize, pigeon peas and cassava plots.

Sauka or Sauka Pimbi[2] is one of the villages under Group Village Headman Mbalu. The group village headman falls under the jurisdiction of Traditional Authority (Chief) Mwambo, an area lying East of Zomba District, near the major fish landing station of Kachulu. The village is predominately comprised of migrants who moved into the area to specialise in fishing. As the number of households started increasing due to fishing and rice farming opportunities, Group Village Headman Mbalu granted them a village status and installed a village headman from amongst them to administer, on his behalf, the demarcated village.

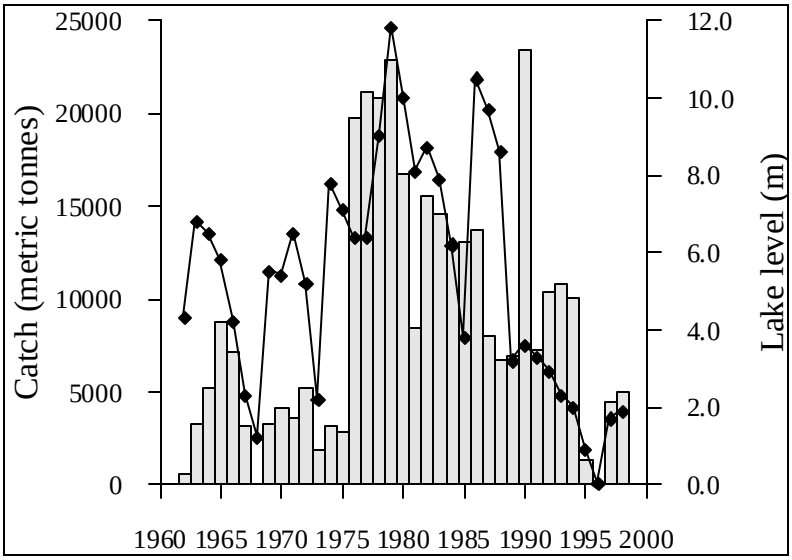
In both villages, combination of quantitative household surveys and a range of qualitative research into livelihood changes and institutional factors affecting access to productive opportunities were carried out, as described in the LADDER methods manual.

Figure 1. Location of village livelihoods surveys in southern and central Lake Malawi



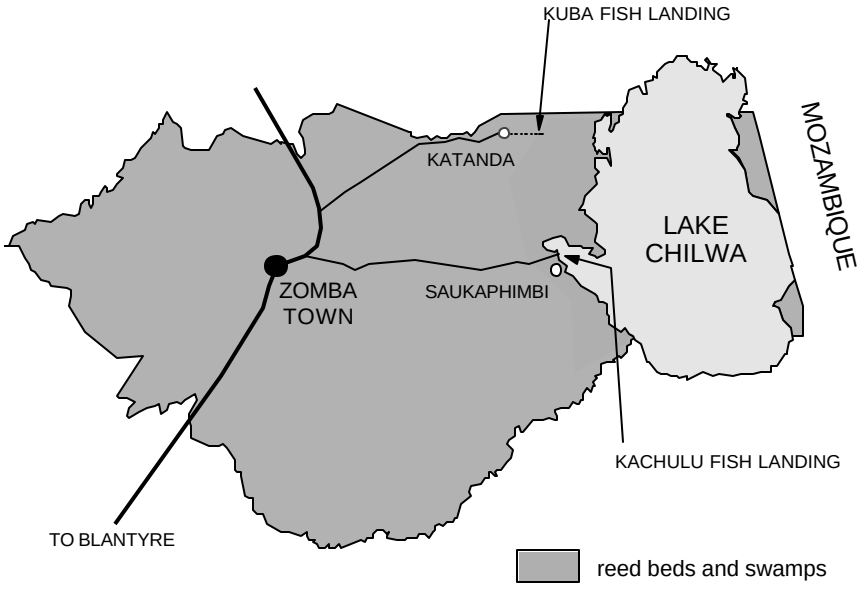
The sampling strategies for selecting households for survey were rather complex, and represented the need to capture both the range of wealth-classes in the villages, and the range of livelihood strategies and household types present. In both cases, core 'villages' are located near areas where migrant fisherfolk have settled or are currently operating, so that conventional wealth-stratified random sampling that takes place only in the village may miss this important dimension of economic life on Lake Chilwa. Thus, the core samples of village-based households, whose occupations included both farming and fishing, were supplemented by targeted sampling of households or temporary settlements in the satellite 'fishing camps' associated with the core villages and often located next to the landing stations. By recording the number of households in each category (both wealth and occupational), it will be possible to reconstruct the relative importance of each livelihood source in the villages in future. For the purposes of this paper, however, we use the samples to make inferences about the relative wealth, vulnerability and livelihood strategies and opportunities available to each group.

Figure 2. Catch fluctuations (shaded bars) and lake level variations in Lake Chilwa, Malawi 1962-1998



Note: The lake gauging system was changed in 1989, and the lake level measurements from this period onwards may not be directly comparable with those in previous years Fisheries data from Department of Fisheries, GOM (1999); Lake Level Data from Environmental Affairs Department (2000).

Figure 3. Location of study villages in Zomba District



Note: The sampling criteria and sample allocation by groups are summarised in Table 1.

Table 1. Socio-Economic and Occupational Stratification of households for sample surveys, Katanda and Sauka-Pimbi Villages, Lake Chilwa

	Katanda		Sauka-Phimbi	
Wealth Category – main village	**Number sampled**	**Total number in the strata**	**Number sampled**	**Total number in the strata**
Well-to-do	10	13	10	18
Better-off	10	29	10	20
Poor	15	39	15	28
Sub-Total	*35*	*81*	*35*	*66*
Occupational Category – landing site area				
Resident farmer -fishers	9		15*	
Migrant specialist fishers with families				
Migrant fishers without families	5		5	
Migrant fishers with families	5		5	
Residents with specialist interests in fish trading	6		-	
Sub-Total	*25*		*25*	*70*
TOTAL	**60**		**60**	**136**

* May include fish traders, but not categorised separately in the samples

The role of fishing in rural livelihoods in Malawi's lakeshore villages

Livelihoods incorporating fishing tend to be structured in one of two ways. There are specialist, migrant fisherfolk who invest in fishing-related assets and derive the majority of their income from fishing and fish trading. This group is typified by the migrants fishing out of Lifuu village in Salima District of Lake Malawi (Figure 4). The second group of households involved in fishing are the residents, which tend to fish part-time, or own some fishing related assets as well as farming or other activities, or have members of their household involved in supplying crew labour on fishing boats. This group can be further differentiated into those whose household heads own fishing related assets, and those that supply fishing labour. The latter are often young families with limited land-holdings. Example income source profiles for these groups are given in Figures 5 and 6, overleaf. Lakeshore fishing villages also include farmers who have minimal or no involvement in the fishing sector, so it cannot be assumed that lakeshore dwellers always have strong direct vested interests in fishing. It may be misleading to characterise these villages as 'fishing communities'.

On Lake Chilwa, the range of combinations of migratory and resident fisherman include: residents who mostly farm but have some involvement in part-time fishing or fish-trading, residents specialising in fishing and/or fish trading, migrants living with their families who also farm, migrants without their families who only fish, and itinerant fish traders. The breakdown in main income sources of some of these groups is indicated in Table 2.

Figure 4. Income contribution by source among migrant boat owners at Lifuu

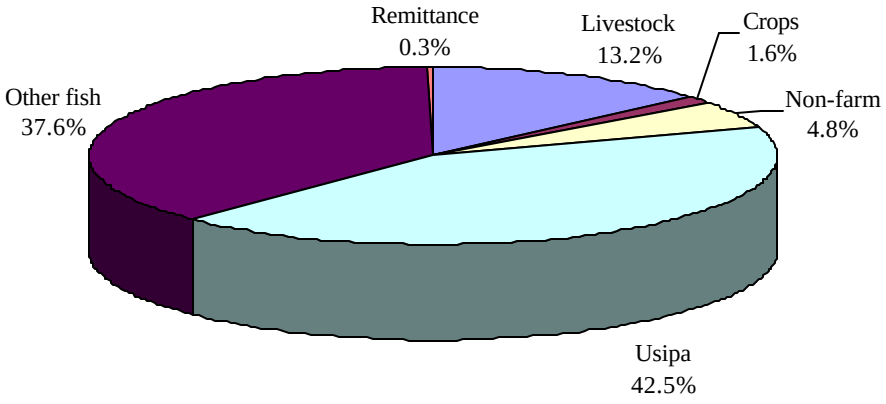


Figure 5. Income contribution by source among resident farmers at Lifuu

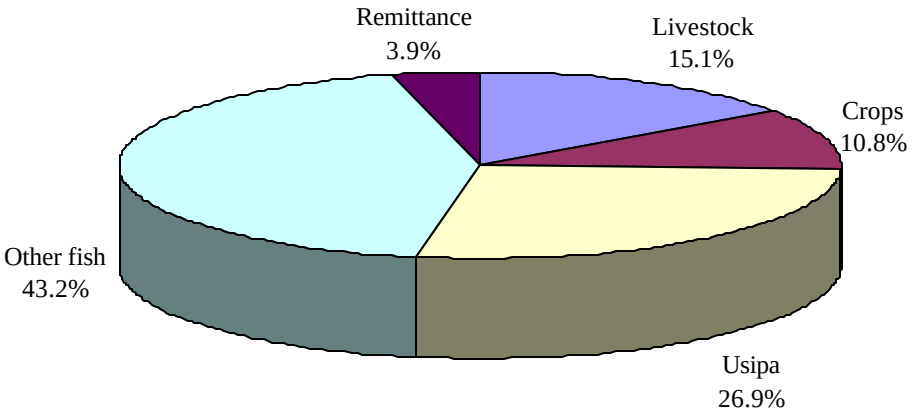


Figure 6. Income contribution by source among resident fishing labourers at Lifuu

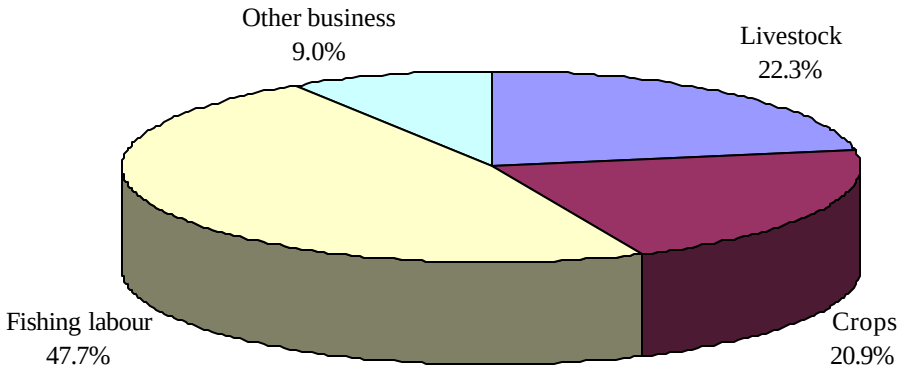


Table 2. Income portfolios (per cent of total income including own consumption) by household type, Saukaphimbi and Katanda villages combined, Zomba District, 2001

	Resident (main village)	Resident (landing stations)	Migrant fishers with families	Migrants without families
Maize	1.5	2.3	0.3	1.5
Rice	17.0	5.3	4.5	2.8
Other Crops	0.2	0.6	0.2	
Cattle	1.1	6.9		
Other livestock	4.9	4.2		
Fishing/fish trade	30.3	63.2	86.9	94.6
Wages	8.1	2.0	1.2	
Self-employment	32.4	14.7	6.3	0.9
Transfers	4.4	0.9	0.7	0.1

Note: Resident households are differentiated into those situated in the main village (hinterland) and those situated on the current lakeshore (landing station). The sample for main village residents was wealth-stratified, with 15 HH from the poorest group and 10 each from the middle and upper groups. The other samples were not wealth-stratified.

Clear occupational divisions are seen between migrant fishing specialists and diversified settled farmer-fishers. The notable feature of the Zomba villages that distinguished them from the purely agricultural villages in Dedza district is the importance of self-employment for resident villagers. The presence of migrant fisherfolk and traders significantly enhances the possibilities for trade and small-businesses in the lakeshore region. The failure of agricultural markets in much of rural Malawi offers no such opportunities.

Fisherfolk not only exhibit occupational diversity at any given time – entry into and out of the fisheries sector is also highly dynamic, as Mvula's (2002) study of fisherfolk's life histories has illustrated. Typically, a fisherman will engage in the fishery periodically, perhaps as a crew member when young, and as an owner/investor when older. Not all owner/investors have prior experience in the sector, and not all crew members remain in the sector. Fishing is clearly regarded as one of a range of possibilities for many people from lakeshore communities, rather than as an indispensable part of their cultural identity.

In all cases, the migrants play an important role in the villages where they are based (for anything between 2 weeks and 30 years) as consumers of agricultural produce, patrons of various service industries (bars, restaurants, shops etc) and employers of crew members from the resident farming households. They attract the fish traders into villages, which further stimulates economic activities. These relationships between migrants and settled farmer-fishers, which are generally mutually beneficial, are described in greater detail in Mvula (2002). Policies to exclude migrants, such as might arise as a result of 'tribalisation' of Malawian politics, or strict interpretation of the move towards community-based management, risk undermining these productive rural linkages.

This study, supported by an extensive recent literature originating from the use of the some form of the livelihoods research framework, finds that fisherfolk, far from being dependant and occupationally immobile as Panayotou (1982) suggested, have diversified rural livelihoods that involve switching between occupations seasonally or between years or maintaining a portfolio of different income generating activities within the household. This is

particularly evident from studies of the inland waters of Africa (Geheb and Binns, 1997; Béné *et al*., 2000; Sarch and Allison, 2000; Neiland *et al*., 2000).

Fishing-based livelihood outcomes: Are fisherfolk 'the poorest of the poor'?

Household income, asset profile and expenditure surveys conducted in three villages on the shores of Lake Malawi during 1999 all refute the common perception of fisherfolk as 'the poorest of the poor' (Table 3).

Table 3. Mean annual household and per capita income by socio-economic group at Msaka, Lifuu and Tukombo, Lake Malawi

Main occupation of HH head	Resident farmer-fisher	Migrant boat-owner	Resident fishing labour provider	Resident farmer
HH Mean income (MK)				
Msaka	50,389	78,868	9,679	12,341
Lifuu	72,667	172,130	5,231	11,817
Tukombo	19,116	52,489	11,098	14,865
Mean Per capita income (MK)				
Msaka	7,845	24,977	4,605	3,304
Lifuu	11,125	39,691	1,212	3,190
Tukombo	3,196	6,404	3,100	3,391

Source: Derived from Mvula, 2002.
Note: Exchange rate at the time of the survey (1999) was 1 US$ = 44 MK.
Each mean income value is based on 10 HH surveys. ANOVA and LSD tests of the significance of these differences are presented in Mvula (2002).

Although the data in Table 3 show high variability between areas, it is clear that migrant boat-owners[3] are consistently the highest earning group, with resident farmers who are also involved in fishing activities being the next wealthiest. This wealth is relative. Only migrant boat owners consistently average more than the US $ 220 per capita per year that defined the poverty line at the time of the surveys. Resident households whose main occupation is farming or the provision of labour to fishing enterprises (i.e. fishermen who do not own their own gear) are the poorest groups. Fishing labour providers are typically young families with smaller households than farmers, so their per-capita incomes are comparable (with the exception of Lifuu). Ownership of fishing-related assets and access to fishing opportunities are clearly associated with higher wealth in lakeshore villages. Similarly, the presence of long-term migrants specialising in fishing is economically beneficial, particularly as they often don't own land and are therefore a ready market for agricultural surpluses from resident farmers. They also provide young members of resident households with an alternative source of income to agricultural wage labour. Although fishing wage-share arrangements are highly favourable to boat or gear owners, in the past it has been possible for crew-members on successful boats to accumulate capital for investment in land, business and ownership of fishing assets (Mvula, 2002).

The story from the shores of Lake Chilwa is similar. Both mean incomes (Table 4) and asset profiles indicate there is no evidence to suggest that fisherfolk are poorer. The asset profiles of the various occupational groups does vary; migrant fishing households, for example, often live in poor housing and own few non-fishing related tools and assets. This cautions against the uncritical use of asset profiles as proxy poverty indicators.

The data on incomes (which include value of own consumption) are still being analysed, but the synthesis in Table 4 indicates that incomes within each category are both variable and skewed (high standard deviation, large differences between mean and median values in some samples). Taking median incomes, migrant fishers tend to be better off than resident-fishers living at the 'satellite' landing stations (there is clearly an outlier or outliers contributing to the high mean and standard deviation of the Saukaphimbi mean). Incomes in Katanda are generally higher than in Saukaphimbi. Comparison with unweighted means from wealth-stratified sampling of residents in the main village (not differentiated occupationally) indicate that most migrants' earnings are comparable to those in the top two income quartiles of the residents of the main village. Incomes are also generally intermediate between extremes in the range observed on Lake Malawi (Table 3).

The comparison of per-capita incomes between migrants without their families and other household types is somewhat misleading, as the size of the household of origin of the single migrants is not known. We therefore compare only HH-level incomes, with the caveat that the migrants without households may have additional incomes coming in to their household of origin. It seems that relative household sizes among the groups are similar in most cases.

Overall income in the fishing villages was almost three times higher in the fishing villages than the Dedza farming villages.

These findings for Lakes Malawi and Chilwa confirm those of numerous recent studies in SE Asia that have shown fisherfolk to be wealthier than other occupational groups (farmers, aquaculturists etc) living in the same communities (reviewed in Pollnac *et al*., 2001), and studies in Africa are beginning to reach similar conclusions (Béné et al., 2000, Teitze et al., 2000).

Table 4. Average incomes of different occupational and residential groups within villages and satellite fish landing stations on the shores of Lake Chilwa, 2001

		Main occupation of HH head		
Estimated Annual Household Income (MK)	**Resident farmer-fisher (main village)**	**Resident fisher-farmer (landing station)**	**Migrant fisher with family**	**Migrant fisher without family**
Saukaphimbi	n=30	n=14	n=6	n=5
Mean	24,166	36,103	17,665	21,153
St. dev		48,657	12,203	17,831
Median		10,786	16,620	16,900
Katanda	n=30	n=15	n=5	n=5
Mean	33,824	27,292	52,656	40,127
St. dev		28,780	21,039	49,601
Median		21,600	57,720	23,015

From analysis of the individual life histories of over 50 fishermen working on Lakes Malawi and Chilwa, a picture emerges of initial engagement in the fishing industry through a diversity of means, often involving considerable ingenuity and luck. Among older fishing boat/gear owners, many accumulated capital towards fishing equipment by working outside Malawi, or in Malawi's cities, as cooks, waiters, mineworkers and traders. Others borrowed

money from relations or friends. A good number of the fishers started by working as fishing labourers. These latter slowly accumulated money that would enable them to buy fishing equipment in phases, belying the stereotype of the drunken, profligate fisherman (comparison of expenditure surveys also suggests this stereotype does not apply universally). None of the people that were interviewed in this research got a loan towards fishing operations from financial lending institutions.

From a policy perspective, these findings should not be interpreted as a straightforward call for greater investment in the fisheries sector as a means of contributing to rural poverty eradication. The limitations of resource renewability are very real and fisheries assessments suggest most of the inshore and smaller lake fisheries are fully or overexploited (GOM, 1999). The current relative success of fisherfolk is built in part on the barriers presented by the need for capital and skills to gain access to the benefits from fishing and, arguably, from the existence of rather exploitative wage-share arrangements. It is the access to capital that constrains fishing effort and the provision of loans or grants to aspirant fishing-gear owners in the absence of an effective fisheries management regime will almost certainly lead to overexploitation. It is through ensuring that capital generated from fishing is used to best advantage in rural areas (rural growth linkages) that the sector can contribute most to poverty eradication in lakeshore areas. We return to this theme in the concluding section of the paper.

Rural Livelihoods and natural resource use in the Lake Chilwa Basin: 35 years of change and adaptation

Instructive comparisons can be made between recent livelihood surveys and a multi-disciplinary survey of the Lake Chilwa basin, conducted by researchers at Chancellor College during the 1960s (Kalk, 1970; Kalk *et al*., 1979). The comparison highlights changes in production options, livelihood strategies and outcomes. The most striking changes to the productive economy of the area are the decline of livestock, the growth in rice production and the apparent change in scale and ownership structure in the fishery.

In 1969, there were 34,818 cattle grazing on the Chilwa plain, with most farmer-fishers owning some large livestock. In 1999, official statistics indicate there were less than 3 000 cattle in Zomba district as a whole, although the same report claims that there are an average of 22 cattle per farm family in Zomba District (Kishindo, 2001 p 33). This does not seem likely to apply to the Lake Chilwa shoreline and wetlands (one of the major grazing areas in Zomba District). The current figures for livestock-keeping in lakeshore villages from the livelihoods surveys (averaging 0.43 CEU) are amongst the lowest recorded in agricultural surveys in sub-Saharan Africa.

In 1969, rice and cotton production for the whole Chilwa plain were of the order of 1,600 tonnes each. Between 1989 and 1999, rice production from Zomba district alone fluctuated between about 5 and 15 000 tonnes (Kishindo, 2001). After disappearance in the early 1990s, cotton production has attained similar levels to that in the 1960s over the last 5 years. Fifty to seventy per cent of the land on the Lake Chilwa plain was under crops in 1969; this apparently remains the same for Zomba District (Kishindo, 2001). The Lake Chilwa area has been densely populated for at least the last 40 years, but land appears to be still available, partly because the constantly fluctuating lake level periodically changes the area available for cultivation.

Diversified, adaptable and mobile rural livelihoods are characteristic of this unstable production environment. A sample of 528 fishermen interviewed in 1969 showed that most

were part-time farmer-fishers, 93 per cent owned their own boats and 61 per cent gained some income by hiring out their boats when not themselves using them. In 1966, there were also 2 000 migrant fishermen living in the marshes in Kasupe district alone, this from a total of 6,444 fishermen, ancillary workers and their families living within the Lake environs – i.e. on reed rafts, islands and in the wetlands. On Chisi Island (83 km^2) there were 11 villages with 2015 people. Men outnumbered women by 15 to 1 – most of them were migrant fishermen. By 1968, when the lake had dried out, the population of Chisi Island had fallen to 779 persons. All the temporary migrants had left, and 228 resident men had left to find alternative employment. At Kachulu fish landing (near the 2001 study site at Sauka) population fell from 800 in 1966 to 186 in 1968.

Agnew (1979) and Agnew and Chipeta (1979) summarise the short-term choices of fishermen during the lake-drying period of 1967-68 as: 1) fishing on a very much reduced scale in the remaining swamps, streams and lagoons in the Chilwa catchment, 2) transfer to nearby Lakes Malombe, Malawi or Chiuta, 3) increasing the cultivation of rice, cotton cassava and vegetables 4) a switch over to commercial handicrafts such as plaiting carpets, 5) spending considerable time trapping birds and digging for rodents or 6) seeking employment elsewhere. These responses varied according to income status, asset profiles, ethnicity and time of residence in the area. In the drying episode of 1968, around 200 fishermen migrated to nearby Lake Malombe, and others moved to Lake Malawi. These were among the richest fishermen, whose investment in fishing-related assets meant that they could not simply cease fishing, as could those with less stake in this source of livelihood. Since the introduction of community-based management in Lake Malombe and Southern Lake Malawi (Sholtz *et al.*, 1998, Chirwa, 1998), the option to move fishing operations between lakes is constrained, but this was still as major response to the drought of 1995/6. Conversely, the response by people in Sauka village to the heavy rains and floods of 2000/2001, resulting in low agricultural harvests, was a shift into fishing by lakeshore communities.

The relative wealth differentials between farmers and fisherfolk also seem to have been maintained over the last four decades. Most of 1200 fishermen interviewed by Chipeta (in Kalk, 1970, p46-47) in 1966 were small-scale semi-subsistence fishermen, making their own canoes and using nylon nets, consuming part of the catch and making use of only one relative to help them. Despite this small scale of operation, between 1963 and 1969, fishermen's incomes were several times those of the average small-holder farmer. Fleet ownership structure is not known at present, but the sharp differentiation between boat/gear owners and others engaged in the fishery, plus the observation of larger 'plank boat' units, suggests that ownership of fishing assets is now more polarised, with small numbers of wealthier individuals owning two or more boats and several types of fishing gear.

The linkages with other rural businesses were also well established: "Fishing, which is done exclusively by men and is a part-time occupation for many, has stimulated on the shores of Lake Chilwa a number of economic ventures: fish processing and trading, hawking, beer brewing by women, shops and bars.", The successful fishermen in the 1960s had larger gardens and produced more cash crops than other fishermen; this remains the case today, particularly as fishing gear owners are among the few people who can afford agricultural inputs now that fertiliser subsidies have been withdrawn under structural adjustment policies.

Despite the above acknowledgement of linkages between fishing income and productive investment, the view that the profits from fishing were directed towards unproductive spending was already established: "An average fisherman [on Lake Chilwa] earns £150 per

annum and most of this money is spent locally, especially on beer and women" (Chilivumbo, A., in Kalk, 1970 p 49). Similarly, in 2001, distilling, selling and consuming *kachasu*, which contains health-threateningly high levels of methyl alcohol, is reported as a significant livelihood activity in most fishing villages and promiscuous migrant fishermen are implicated in the rapid spread of HIV/AIDS in the lakeshore area.

Thus, although the fisheries of Lake Chilwa offer an economically unstable environment, determined by the seasonal and long-term fluctuations in lake level, at high production periods the fisheries permit readily earned cash. In good years, Lake Chilwa supplies almost half the total fish production in Malawi. Management that constrains access to fish in productive periods constrains income-generating opportunities, denies people access to subsistence and serves no conservation purpose in a lake where the sustainable yield concept is obviously untenable. And yet, despite wide-spread acceptance that fisheries management, in its traditional guise of stock conservation measures, is inappropriate, there have been recent measures to introduce fishery regulations to stabilise yields and conserve stocks. This goes counter to Kalk's suggestion that uncertainty about lake levels suggests that development effort be focused on agriculture, rather than fisheries.

The repercussions of recession in Lake Chilwa waters and consequent decline of fishing are much wider than on fishing alone. The whole of the Chilwa plains and lake must be seen as an economic network. Not only are there links between fishing and various ancillary services, but also complementary flows of income between fishing and farming. The "integrated small-scale economy of farming, fishing and cattle-rearing" of the 1960s (Kalk, 1979; p15) has now changed to one in which cattle-rearing has all but disappeared as a saving and livelihood option, potentially decreasing the resilience of the overall livelihood system.
Sectoral concerns for the sustainability of individual natural resource systems have prevailed, even when it is known that notions of resource sustainability are questionable. "The Chilwa fishes are clearly well fitted to persist in the unpredictable Chilwa ecosystem, provided the refugium of swamps and streams is maintained", according to Moss, (1979, p411) who also cautions that more dangerous than overfishing in this resilient system were threats to the swamps through reclamation for agriculture or perhaps as irrigation reservoirs, siltation through changes in catchment land-management, and pesticides. It is these threats that have led to recent interest in environmental management in the Chilwa wetland, and its designation as a Ramsar site. (Environmental Affairs Department, 2000).

The EAD report reiterates the perceived resilience of the system. However, in an analysis of fisheries issues (EAD, 2000, Table 5.2), the report highlights "Ignorance, Poverty, Corruption, Migratory fishermen and Lack of Resources" as barriers to sustainable utilization of fishery resources, and recommends the implementation of "community-based natural resource management for the benefit of the local people". There is clearly some difficulty in accepting that migration may be a legitimate and sustainable strategy to maximize benefits from a fluctuating resource, a factor that needs to be taken into account in the design of any community-based management scheme. Around Lake Chilwa, there are large-scale shifts from fishing to farming, pastoralism and other occupations when the lake dries out (and back to fishing when it refills). Such strategies highlight the importance of enhancing or maintaining the flexibility of lake-shore livelihoods rather than constraining it with fixed fisheries production quotas, seasons or areas.

Early experiences with the effects of fisheries co-management on livelihoods

The promotion of community-based or co-management in Malawi's fisheries has been most actively targeted at Lakes Malombe, Chiuta and the South-east arm of Lake Malawi, coinciding with the main spheres of activity of two GTZ-funded development projects over the last decade (MAGFAD and NARMAP). Elsewhere, there have been apparently spontaneous initiatives to introduce local-level management, particularly since there is now legal recognition for the rights of local communities to make their own fishery bye-laws (The 1997 Fisheries Management and Conservation Act). The experiences with this experiment in changing fisheries governance on livelihoods have been mixed and require detailed analysis (e.g. Hara et al., 2002), and there is not the space here to go beyond a rapid overview of the major issues, in this case focused on Lake Chilwa. It is also perhaps too early to say what effect CBNRM initiatives have had on fisheries productivity and stock conservation.

Definitions of 'community' are few, and necessarily vague or inadequate. One CBNRM project in Malawi[4] ' has taken the community to be "a village or group of villages under the jurisdiction of a village headman or a group village headman", which evades the complexities hidden within these socio-geographical units. One of the difficulties encountered in community-based management in Malawi is that lake-side villages, far from being the homogenous and clearly bounded entities considered ideal for the establishment of functional common property resource management regimes (see Agrawal, 2001, for review), incorporate a range of occupational interests, ethnic groups and transient and long-term migrants, all having access to differential assets and pursuing different livelihood strategies. A common vision of the benefits of resource stewardship and expectation of future benefits of current restraint cannot be expected in such a group. Institutions capable of brokering compromises between entrenched conflicting interests and enforcing the results of negotiated outcomes are required, rather than mere 'community representatives'.

Some of the major challenges to the legitimacy and effectiveness of Beach Village Committees (the institutional vehicle through which community-self management is being promoted) that have been identified in the literature (e.g. Hara et al., 2002; Njaya, 2002) and in the current fieldwork are as follows:

1. Achieving representation. Achieving fair representation of the various interest-groups in the fishery and in setting effective and equitable resource conservation measures that are agreed upon, and therefore adhered to, by all the various interest groups in the fishery. Much of the discussion centres on whether migrant fisherfolk should be represented in area-based committees, and on whether non-fishing interests from villages that play host to migrant fisherfolk should be represented. To date, these questions are unresolved, but threaten to undermine the authority and effectiveness of BVCs.

2. Developing capacity of BVCs to identify and enforce regulations. Many BVCs have been found to lack direction and unable to agree on management objectives and strategies. In Sauka, on Lake Chilwa, the BVC apparently receives protection and support in carrying out enforcement duties from armed government patrols, but is unable to articulate the objectives of its management approach. In Katanda, people saw the recently established BVC, not as their own institution, but as a means for the community to regulate, on behalf of Fisheries Department, the use of fishing gears in the lake

3. Preventing BVCs from abuse, manipulation, or control by local elites. In Sauka, people complained that BVC members take personal advantage from their position by taking money

from fishermen regardless or not of whether they are violating regulations. Failure to pay may result in gear confiscation and arrest. Conversely, some with connections to the BVC and Fisheries Department evade punishment when they use illegal nets or contravene regulations in other ways. The authority of BVCs is also sometimes undermined by traditional leaders, who can waive punishments set by BVCs in return for 'personal gratifications'. In Katanda village, various duties levied on migrant families for access to farming and fishing opportunities were regarded as excessive. The BVC in Katanda was accused of levying unreceipted payments for unspecified services.

4. Balancing flexibility with rights-based fishing. Maintaining the mobility and flexibility in fishing operations necessary to respond dynamically to stock fluctuations and movements, and part-time safety net functions for poorer participants in the fishery while at the same time creating barriers to the use of destructive techniques and preventing totally open access is not easy. The problem is being addressed through attempts to co-ordinate individual village BVCs through Area Management Committees that correspond to natural ecological or fishery units, but such coordination mechanisms are beset by lack of funding, information sharing mechanisms and the differing circumstances, capacity and will of different BVCs (Ganter, 2001b)

5. Funding for BVCs. At present donor funding supports some BVCs (although it is being phased out) while others are expected to be self-financing. The fieldwork indicated that funds were raised in ways considered inequitable and lacking transparency, and that no benefits to the wider community of fisherfolk, in the form of improved management, could be discerned. Most fishermen seem unwilling to pay BVCs for services that they can not yet provide.

When they were conceived, it was envisaged that BVCs could be strong independent bodies that could eventually assume delegated management responsibilities from government. However, they were not occupying a power vacuum, and some of the roles and functions of the BVCs infringe on the powers, authority and economic privileges of traditional leaders such as village headmen (Hara et al., 2002). This has resulted in the situation where migrant fisherfolk now have to seek permission and pay '*mawe*' (informal taxes) to both the village headman and members of the BVCs. Fishermen, village headmen and the Fisheries Department are all trying to influence BVCs, in different directions (Hara et al., 2002) and levels of participation in management by ordinary fisherfolk on Lake Chilwa are low. Fishermen in Sauka regarded their BVC as an imposition, not a body representing their interests, and they are sceptical of its conservation functions.

Fisheries resource conservation, like all environmental conservation measures, is difficult to sell in the context of extreme poverty and lack of alternative opportunities to natural resource based livelihoods. The recently completed DANIDA-funded Lake Chilwa Environmental Management Project was known by villagers in Sauka to exist, but its activities, besides erecting large billboards, were not clearly understood or appreciated. These observations of lack of local ownership and interest in international environmental projects on Africa's Great Lakes regions are not unique (Allison, 2002) and suggest that aligning short-term livelihood interests and long-term conservation ones are not as easy as the 'integrated conservation and development' literature suggests.

Devolving greater managerial command over the use of natural resources carries the risk of even worse natural resource destruction if there is no sense of social responsibility (citizenship) and a lack of appropriate management capacity (Western and Wright, 1994).

This is a real danger with CBNRM in fisheries in Malawi, but it is still preferable to a 'do nothing' or 'business as usual' approach. It has become clear that the government lacks the resources to adequately enforce fisheries conservation measures, and vesting such responsibility in representatives of fishing communities seems the only option. In order for such representation to work, however, it may be necessary to move BVCs more in the direction of producer-organisations that provide practical services to members, and to reduce the influence of government and traditional authority over day-to-day fishing operations, while retaining their involvement in steering overall fishing operations towards sustainability.

Recommendations for support to fishing-based livelihoods

The four most striking features of lakeshore livelihoods in Malawi are the degree of monetisation in the fisheries sector, the relative wealth of those with access to fishing-related assets and to the resources themselves, the importance of mobility in specialist fisherfolk, and the degree to which fishing is an integral part of livelihoods for settled farmer-fishers.

In the case of settled farmer-fishers, decreasing availability of land and the marked decline of livestock in Malawi (due to theft and lack of veterinary support services) is reducing the diversity of the economic base for lakeshore dwellers. This may push more of this category of person into full-time fishing, thereby increasing the number of migrant fisherfolk with a high level of dependence on fishing. Increased dependency on fishing is not desirable in the long-run, even if it may be profitable in the short run. Restoration of the 'tri-economy' based on cropping, pastoralism and fishing is perhaps the overall most important means of sustaining both fishing-based livelihoods and fish resources. The cattle-cropping-fishing 'tri-economy' is a very common strategy in similar areas elsewhere in Africa, and has proved resilient to extensive biophysical and economic changes in other areas (e.g. Geheb and Binns, 1997; Sarch and Birkett, 2000). The removal of barriers to mobility and livelihood diversification and active support for livelihood diversification are relevant overall policy directions in this context. This is not the same as providing incentives for people to diversify out of fishing altogether. Alongside this overall target can be specified a number of recommendations to maintain or enhance the contribution of the fisheries sector to the rural economy in Malawi's lakeshore regions. Recommendations are grouped into those relating to policy directions, research and monitoring suggestions and identification of possible entry points for micro-level intervention. These areas are not meant to be mutually exclusive

Policy directions

The central tenets of PRSPs are the need to increase the income and expenditure of the poor, improve their access to assets, services and facilities, empower them by enabling their participation in political and social processes and reduce their vulnerability to shocks and chronic insecurity (Gilling *et al*. 2001). Fisheries policy currently addresses these concerns only tangentially, at best.

1. Fisheries as an engine of rural growth. Fishing and fish trading generates cash income in Malawi's rural and urban areas. This income is invested in agriculture, trading and service enterprises. Cash and investment in rural Malawi is extremely limited and an effective market economy based on agriculture has failed to develop in most areas. The policy questions therefore centre around whether fishing and fish trading are more important as sources of cash income to rural communities, or, as has been traditionally stated by Malawian policy makers and donors, as a source of cheap dietary protein for low-income households. With per capita availability of fish apparently halving, and major changes in the livestock sector, a careful consideration of any policy change is required. However, it should be borne in mind

that fish are most important as a source of essential amino acids and micronutrients, rather than protein, and that the current food crisis is based on failure of staple crops, rather than protein malnutrition. There is therefore a case to be made for consideration of a shift in policy to favour maximisation of access to fisheries, rather than maximisation of landings, or tax and export revenue income from the fisheries sector. Current fisheries policy does not clearly prioritise between these conflicting overall goals (Allison et al., 2002). The elements of such a policy might include support for a taxation and regulatory environment that does not constrain investment in the sector and the transfer of revenues between sectors.

2. Incorporate fisheries in agricultural SWAps. Fisheries Department in Malawi tends to move between various environment and natural resources ministries. In terms of rural development and poverty alleviation, however, the importance of the fisheries sector lies in its integration with agriculture. Incorporation of fisheries in sector-wide plans for agriculture may help to resolve lack of coordination in donor projects in the sector (Allison et al., 2002). SWAps are designed to establish a situation in which all public support (government and donor) to a sector is informed by a common vision and strategy, implemented through a common management framework with increasingly effective and accountable institutions, and based around a public expenditure programme (Gilling et al., 2001). They may provide a means by which the fisheries sector in Malawi can develop its policies more closely within government policy objectives for poverty eradication.

3. Support the existing decentralised catching and marketing sectors. In contrast to agriculture, the marketing of fish in Malawi does not suffer from problems of monopoly or market failure in remote areas. The mobility of fisherfolk and small-scale fish traders is a key element in maintaining the success of the marketing chain. There has never been a state fish marketing board analogous to ADMARC, and small-scale private sector fish traders represent a good example of entrepreneurship in rural Malawi. Attempts to interfere with these marketing chains, such as through centralisation, are misplaced. The maxim ‘production by the masses for the masses’ (Platteau, 1989) works for the Malawian fish trade, and provides the widest possible benefits to livelihoods. A favourable tax environment, with thresholds below which taxes are not collected, would serve to maintain the involvement of the landless poor and female-headed households in the small-scale fish trade.

Research and monitoring

4. The nutritional role of fish for the poor. Careful nutritional studies are required to validate current policies that emphasise fish as a protein source. The oft-quoted statistic that “70 per cent of animal protein in the diet of Malawians’ comes from fish” is without recent empirical basis. These studies should also include consideration of the importance of fish for other dietary constituents such as essential amino acids.

5. Community-self monitoring for CBNRM. Measuring change in livelihoods is difficult and participatory approaches to monitoring and evaluations are essential (Ashley and Carney, 1999, p2)– this is not yet explicitly part of the fisheries CBNRM agenda in Malawi. It is important to find out what people engaged in fishing activities are already monitoring, either in terms of their own activities or those of others. This could provide the basis for design of self-monitoring systems that would help build ownership of the CBNRM initiative. At present, such information has no role in Malawi’s fisheries monitoring systems which remain largely unchanged despite a shift from state-based to co-management (Darwall and Allison, 2002).

6. Continue the use of SLA approaches in the fisheries sector. The promise of the Sustainable Livelihoods Approach is in its emphasis on more accurate (cross-sectoral, poverty-focused) identification of interventions, more effective (responsive, sustainable and people-centred) implementation, and more integrated (participatory and dynamic) monitoring and evaluation (Gilling et al., 2001, p316). This approach seems to be providing the knowledge of the fishing community necessary for its proper consideration in the wider agenda of poverty eradication in Malawi.

Micro-level interventions

7. Deliver financial and business support services to the fisheries sector. Fishing appears to generate a cash surplus, which could be used more productively in the rural economy. The lack of availability of suitable savings schemes and alternative investments to fishing in the rural economy mean that much fishing income may be spent unproductively or reinvested in fishing, leading to overcapacity in the sector. There may be scope for working with groups of fisherfolk, particularly traders and migrant fishers, to help channel their earnings into investments outside the fishing sector. These may include saving schemes for land purchase and advice and assistance with investments.

8. Target migrant fisherfolk and the communities they live in for HIV/AIDS prevention programmes. Evidence from Malawi and elsewhere around the African Great Lakes suggest that fishermen are a high-risk group – they are predominantly male, have access to cash income and are often either single or away from their families for protracted periods. These conditions are associated with high-risk behaviour and the monetary benefits generated from fishing may be dissipated in meeting the cost burden of a high rate of HIV/AIDS infection. Interventions targeted specifically at fisherfolk and fish traders may be effective in reducing overall transmission rates in rural areas.

9. Professional training for members of the fishery sector. Fisherfolk and fish traders are an important class of rural entrepreneur in Malawi. Training provision for the fisheries sector exists at the government-run Mpwepwe fisheries training college, but this is focused on larger-scale fishermen, and on training government fishery officials. Fisheries training could be re-orientated towards learning about traditional conservation-sensitive fishing techniques, running a small business and integrating fishing with other activities. This could be integrated with current efforts to train BVCs in community-level management. It is unlikely that such training would take place in the formal context of a training college. Vocational training based around existing fishing activities and targeted at crew labour and owner-operators may help with skill acquisition and building a sense of pride in fishing as an occupation, and its wider recognition in official circles, where fisherfolk are commonly regarded with some suspicion.

10. Solicit involvement of the NGO sector in fisheries. Mechanisms for delivery of support and services to the fisheries sector are currently weak and ineffective. Fisheries Department has the difficult dual mandate of delivering both services and enforcing compliance with regulations and currently finds itself devolving both functions to under-trained community groups under co-management initiatives. There is also clearly a service vacuum at local level in rural Malawi, as the private sector has yet to step in where government has withdrawn. The NGO sector and some social institutions, including religious ones, are highly rated as providers of social and advisory services, but these organisations have seldom been involved with fishing communities. Internationally, the only NGOs with a serious interest in fisheries

tend to be conservation ones, like IUCN and WWF. There may be scope for NGOs to contribute significantly to rural welfare in Malawi through support to the fisheries sector.

Conclusion

The results of our research in Malawi are in accord with findings in other developing countries, where several studies have suggested that small-scale fishers are successful entrepreneurs exhibiting geographical and occupational mobility (Geheb and Binns, 1997; Sarch and Allison, 2000; Béné *et al*., 2000). Fisheries management strategies which focus on optimal catch rates ignore both the role which inland fisheries play in the livelihoods of many Africans and the inherent bio-physical fluctuations which have shaped such livelihood strategies.

"Livelihoods are pieced together, changeable, may not always work as well as planned, and have multiple components that are a product of learning and experience" (Croll and Parkin, 1992). The task is therefore to analyse the "actions and the logics of a 'moving target' of innovative and mobile people" (Bryceson, 2000), and to enable interventions that support these adaptive strategies in the fight against poverty. This challenge looms large in Malawi, but the fisheries sector, entrepreneurial and adaptive, may be a useful place to start.

Footnotes

[1] Every document written over the last 50 years on Malawi's fisheries repeats the statement that 70% of the animal protein in Malawians' diets comes from fish – the source of this statement seems to be the Nyasaland nutritional survey in the early 1940s. An updated study is recommended.

[2] In this report, the names "Sauka and Sauka-Phimbi" refer to Sauka and Chimela sub-villages, which were covered as one for purposes of sampling in the survey.

[3] The term 'migrant' is commonly used to refer to people who are in fact long-term settlers, but are not originally from the village where they are based. Often they arrive as young men and stay for 20-30 years before returning to their place of origin. In the fisheries sector, they are often Tonga and Tumbuka from the Northern Region.

[4] ULG Consultants, 1997, Community based natural resource management: a strategy for the USAID Nature Programme, Malawi. Final Report.

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