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Common Property and Poverty Fisheries Co-Management in Malawi

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Abstract

Malawi's economy is fragile, dominated mainly by the production and export of agricultural products. National development policy concentrates on growth through poverty alleviation and the fisheries sector has a key role to play through the provision of rural employment and, more importantly, through its contribution to household food security. Per capita consumption of fish in Malawi is declining as the population grows at a rate of 3.2% per annum, pressures on natural resources are high and have led to severe environmental degradation. The problems of chronically low incomes amongst many of the world's fishermen has received much attention. Poverty alleviation among fisherfolk is a common, though often elusive, policy objective. One of the reasons for this is the general lack of understanding of the features and factors of this poverty and without such an understanding any policy is unlikely to achieve the desired results. A large body of work suggests that another reason for this persistent chronic poverty is attributed to the common property nature of capture fisheries and the associated dissipation of resource rent.

Resource rent dissipation does not, in itself, cause poverty but as an employer of last resort with low entry barriers and relatively high exit barriers the fisheries sector concentrates individuals with low opportunity costs. This low opportunity cost is a contributory factor as is the disequilibrium of opportunity cost due to physical and emotional immobility of the workforce. The only available method for increasing incomes thus seems to be increasing the opportunity costs by developing alternative employment opportunities.

Fisheries in Malawi have reached a critical point in the development process where emphasis is changing from one of technology-led production increases to the establishment of sustainable resource utilisation. Effective resource management must involve the fishing communities in efforts to limit access, and these changes must occur in parallel with the development of alternative, non-primary productive, income earning opportunities for lakeshore communities to raise opportunity costs and broaden the economic base. Such an approach offers the only solution, not only to common property resource management in Malawi, but more generally to halting and reversing the downward development spiral.

Geography

Malawi is a landlocked country with a total area of 119,140 Km² of which about 23,900 Km² (20%) is water. This is dominated by Lake Malawi but includes the very productive Lakes Chilwa, Malombe, Chiuta, the Shire River and associated marshes (Figure 1). There are also numerous dams and reservoirs of varying sizes. The country is divided into three regions and twenty four districts.

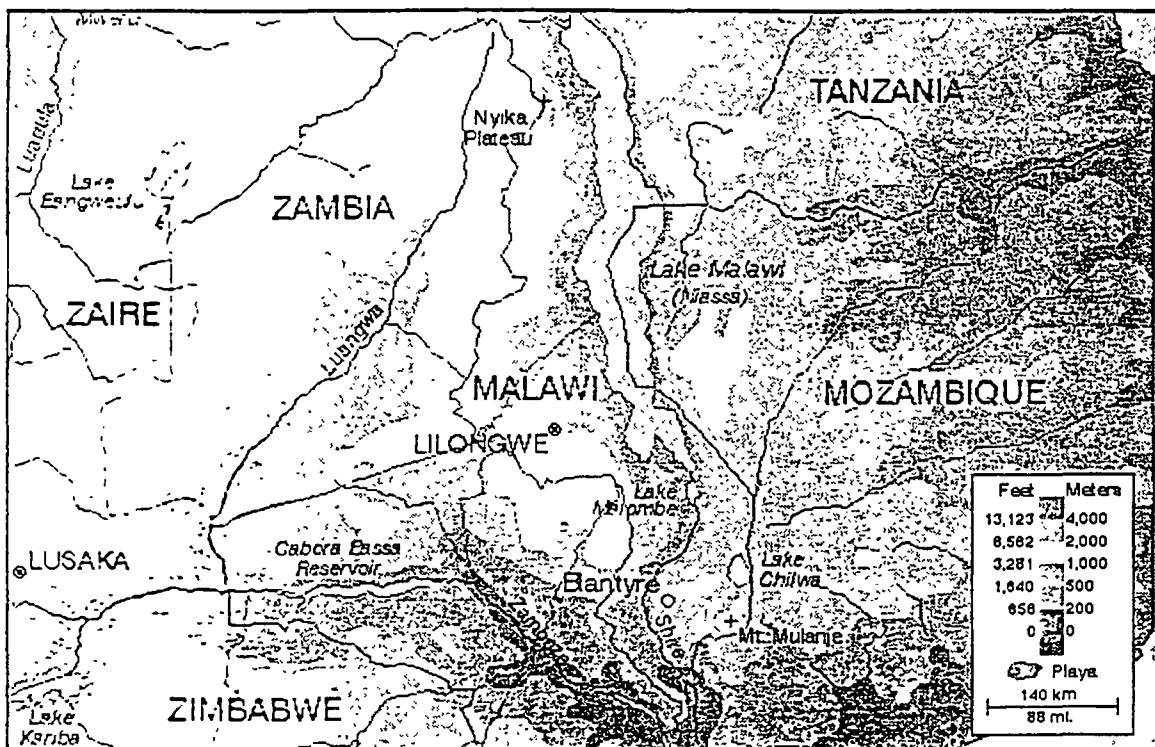
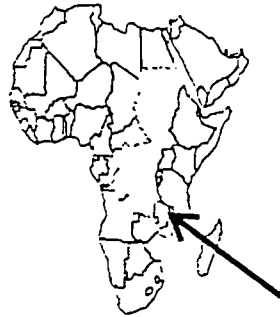
Demography

Malawi has a high population growth rate of 3.2 % and an estimated population of 10 million in 1994. The high growth rate is due to a high level of fertility (the total fertility rate is 6.7) and declining mortality. In spite of declining mortality, the infant mortality rate is still high at 134 per 1000 live births and child mortality is estimated at 234 per 1000. Average life expectancy at birth remains low at 45 years.

Average population density is estimated to be about 105 per km². This, however, disguises the variation in density between areas. Arable land is reported to have a population density of 1,732 per km² giving 56% of the country's small-holder households less than one hectare of land, considered to be the minimum necessary for self-sufficiency in maize, the staple food. Population density figures do, however, vary during the year due to migrations in search of work and a steady migration of people into urban centres.

The total labour force in Malawi was estimated to be 4.4 million in 1993. This represents 77% of the total population over the age of ten years. The majority of these are engaged in agriculture and fishing. Of the total, 35% were formal wage earners while 60% were involved in the informal sector. The low wage rates available reflect the surplus of labour and the low productivity.

Figure 1 Malawi



Economy

Malawi's economy is heavily dependent on agriculture. The main export crop is tobacco with tea, sugar, cotton, groundnuts, rice, coffee and pulses of less importance. Prior to the 1970s, economic growth was high at 6%, representing a 3% per capita growth rate although the benefits from this were unevenly distributed. The 1970s saw a period of considerable infrastructure investment by Government, an expansion of state-owned enterprises, and a growing dependence on tobacco as the main export crop. Deteriorating terms of trade,

increasing oil prices, rising global interest rates, and external transport problems resulting from the war in Mozambique, led to worsening economic conditions. In 1980/81 there was a severe drought which further reduced agricultural output. The crises of the 1980s revealed severe structural weaknesses in the economy, including a stagnant smallholder agriculture sector, heavy import dependence in the industrial and energy sectors, inefficient public enterprises and weak institutional capacity. In response to this the Government initiated an adjustment programme which included stabilisation measures and a series of structural adjustment loans and standby facilities from 1981 to 1990.

International circumstances and the political situation in Mozambique, however, led to deteriorating economic conditions exacerbated by adverse weather in 1986 and 1987. The increase in refugees from Mozambique also placed a major burden on the country's resources. In 1992 severe drought in the Southern African region combined with a 15% fall in terms of trade, reversed the growth of previous years. Agricultural production fell by 25%. At the same time external nonhumanitarian balance of payments assistance was suspended causing heavy drawing on foreign exchange reserves. In 1993 the economy started to recover and real GDP grew by 11.1% due almost entirely to increases in the agricultural sector. Manufacturing and other industries, however, showed negative growth due to poor foreign exchange availability.

National Development Policy

The policies of the Government of Malawi are laid down in the Statement of Development Policies, 1987-1996, (DEVPOL) which outlines national and sectoral development objectives and strategies. The policy focus has shifted towards food security and the alleviation of poverty and Government, in 1990, produced the Food Security and Nutrition Policy Statement as a supplement to DEVPOL. Government has also recently conducted a Situation Analysis of Poverty. The broad macro-economic policy for the country is established in a series of *Policy Framework Papers* written by the Government in association with the IMF and World Bank.

Malawi's economic and social objectives may be summarised as the reduction of poverty, ignorance and disease by the achievement of rapid and sustained economic growth, an improvement in income distribution, and a reduction in the instability of welfare for both the individual and the nation. The production of the *Food Security and Nutrition Policy Statement* in 1990 recognised the need to place greater emphasis on poverty alleviation in national development objectives. The overall objective expressed in this statement is to improve the food security and nutritional status of all households in Malawi.

There are a number of constraints to the achievement of these objectives. Agricultural productivity is low and falling continuously as population increases and land is degraded through poor agricultural practices. Labour rates are very low and poor incomes have resulted from low producer prices, adverse terms of trade, poor market access, low opportunity cost of farm labour, and policy biases towards the estate sector. Labour productivity is low due to poor education and health. Malawi's population is far higher than the land can sustain using current technology levels and inputs. The institutional organisation and capacity of the country has in the past been very centralised and has not fully addressed the needs, aspirations and capacities of the community.

Fisheries Sector

In 1994 there were more than 42,000 people directly engaged in small-scale fisheries and less than 1,000 employed by the larger scale operators. Employment in support activities of marketing, distribution and input supply has not been quantified but is estimated to exceed 100,000. Fishermen use different boat types (Table 1) and a variety of gears of which gillnets and seines are the most important.

Overall catches increased to a maximum of 89,500 tonnes in 1987 but then fell and stagnated at around 70,000 tonnes (Table 2). The majority of the catch comes from Lake Malawi, but Lakes Chilwa, Chiuta and Malombe and the Shire River are all of importance. Over 90% of the catch comes from the small-scale sub-sector

Table 1 Distribution of Fishermen and boats in 1994

	Gear Owners	Crew	Boats with Engine	Boats without Engine	Dugout Canoes	Total
Lake Malawi North	3,384	6,938	24	102	3,721	3,847
Lake Malawi Central	1,985	6,722	147	447	2,251	2,845
Lake Malawi South	1,438	9,078	221	756	1,700	2,677
Upper Shire	62	565		70	11	81
Lake Malombe	395	2,303		529	58	587
Lake Chilwa	1,224	5,619	1	569	933	1,503
Lake Chiluta	652	820		62	507	569
Lower Shire	1,462	580		16	887	903
TOTAL	10,602	32,625	393	2,551	10,068	13,012

Support to the sector is provided through the Fisheries Department under the Ministry of Natural Resources which carries out a wide range of research, extension, monitoring and enforcement activities working closely at the community level. Department Headquarters, based in Lilongwe, carries out the central policy and planning role of the sector, co-ordinates the activities of the various sections, and provides a coordination function for the inland fisheries of the SADC¹ region. Extension co-ordination is carried out from Lilongwe and implemented through seven district fisheries offices. The fisheries research unit is based at Monkey Bay where it carries out biological and limnological research, and provides advice on matters related to resource management.

Table 2 Fish Production 1980 - 1993

Year	Lake Malawi		Lake Malombe	Lake Chilwa	Lake Chiluta	Lower and Middle Shire	Total	Landed Value (K000)	
	Artisanal	Commercial							
1980			35,200	6,500	19,400	800	3,900	65,800	10,521
1981			29,300	8,500	8,600	900	4,000	51,300	8,220
1982			24,200	12,100	15,500	1,400	5,200	58,400	9,346
1983			31,200	9,700	16,800	1,100	6,100	64,900	n/a
1984			32,600	11,300	14,600	2,000	4,900	65,400	17,649
1985			29,000	8,600	15,200	1,700	7,600	62,100	20,513
1986			36,400	12,700	13,800	700	9,200	72,800	27,646
1987	41,800	8,200	50,000	13,000	14,000	4,000	7,500	88,500	37,128
1988	40,400	6,700	47,100	10,900	10,800	1,800	8,200	78,800	71,706
1989	33,800	4,900	38,700	7,100	11,900	910	12,200	70,810	77,345
1990	31,600	6,200	37,800	12,200	14,200	2,400	7,500	74,100	n/a
1991	30,000	5,700	35,700	9,900	7,400	1,700	9,000	63,700	65,000
1992	35,500	4,900	40,400	8,000	14,500	3,600	3,000	69,500	82,418
1993	38,155	5,931	44,086	6,709	11,079	3,433	2,892	68,201	113,633

all catches in metric tonnes

Sectoral Policy Objectives

There is no division of policy between fisheries subsectors. Small-scale fisheries, large-scale fisheries, aquaculture, sport fishing and the aquarist trade are combined in one statement of objectives. The current policy objectives and strategies were established 1987 and reflected the orientation of the sector at that time. That orientation was very much focused on the needs of the fish resources themselves and the Fisheries Department was seen as the guardian of those resources. In more recent years the emphasis of Government has moved much more towards a concern for the needs of the people of Malawi and the fisheries resources are now seen more in terms of their contribution to a stream of sustainable benefits to the fishing community itself and to the wider national community.

¹ Southern African Development Community

To be effective as a sub-sector, fisheries development must contribute to the achievement of national development objectives and to this end sectoral policy is currently being revised to ensure that the contribution which the fisheries sub-sector makes to the achievement of national development objectives is maximised. Six key policy issues are discussed below.

(a) The Alleviation of Poverty and the Creation of Employment

Fishing communities are by no means homogeneous. The relative wealth of the community members varies with their position in the fishery, their access to capital, the type of gear they operate and the location of the community. Some of the participants, particularly gear owners, may be wealthy relative to other community members engaged in farming. Many of the participants in the fishery are, however, some of the poorest members of society who have little access to land and few alternative income earning opportunities. Many of them have joined the fishery in response to increasing land pressure resulting from rising population. The fishery has provided these people with a source of income, albeit at a low level, which sustains them in the absence of alternatives. This has coincided with, and been a contributory factor to, declining catch rates such that the income from the fishery is spread between more participants.

(b) Nutrition And Food Security

The supply of fish contributes significantly to nutrition and food security. Fish provides a major source of protein supply, provides essential minerals and vitamins, is available throughout the year, is accessible to the vast majority of the people, is available in times of drought and remains largely within the purchasing power of the majority of the population. While Government places priority on cereal production fish guarantees a nutritionally balanced diet to a population suffering from high levels of malnutrition. The supply of fish per person is, however, steadily falling as the population rises².

Continued poverty in the small-scale fisheries sector will cause over-exploitation of fisheries resources. Increasing scarcity of fish will cause its value to rise considerably. Fish will become a high price commodity accessible only to wealthier households. The poor will be progressively deprived of one of their only readily accessible sources of high quality animal protein. A higher value will further encourage people to exploit the resource and lead, in the long-term, to serious depletion of fish stocks and a fall in the absolute amount of fish available. In a country where levels of household nutrition are already chronically low, and the overwhelming dependence on maize among poorer households puts them at considerable nutritional risk, the loss of one of the few commodities which provides important nutritional elements in the diet would have serious consequences.

(c) The Conservation of Biodiversity

The aquatic resources both in terms of species and ecosystems are some of the most diverse and complex in any inland water body in the world. This biodiversity is part of the world's natural heritage which Malawi has pledged to preserve for future generations. The shortening of time horizons of the poor as their environment is further degraded and population increases, will cause them to increase their harvesting efforts. As resources are depleted so the fishermen will put pressure on a wider variety of species.

(d) Economic Growth Through Private Sector Development

The major contribution of fisheries to the economy is made through small-scale private enterprise. Such enterprises operate in remote communities and generate localised wealth, often in areas where there are few other opportunities. The wealth created stimulates growth of other enterprises in the community, such as shops, restaurants and guest houses although the extent to which this has happened is poorly documented. This development raises the opportunity cost of capital and labour in fishing communities which will reduce the labour movement into, and investment in, the fishery, thus reducing pressure on the resource, sustaining biodiversity and increasing food security. Reduced pressure on the resource will

2 In 1976 per capita annual supply was 12.9 kg, this had fallen to 9.9 kg in 1986, and now stands at about 7 kg

increase productivity and financial returns which can stimulate alternative opportunities to contribute to poverty alleviation. Increased income may, with appropriate support, stimulate improved irrigation of land and thus provide all-year farming opportunities to further raise the opportunity cost of labour and capital.

(e) Support For Regional Development

Small-scale fisheries operate in remote areas of the country away from major urban centres. They provide one of the few viable employment and subsistence activities for these remote communities and are thus a major instrument of regional development policy.

(f) Foreign Exchange Generation

Whilst small-scale fisheries do not contribute greatly to exports, a limited but significant fishery exists for the export of aquarium fish. There is also considerable foreign exchange generated by the tourists who visit Malawi to observe the lakeshore scenery and the rich biodiversity of the aquatic environment. Resource associated research activities from overseas also generate a limited but significant income for the country.

Poverty Alleviation in Malawi

The benefits of economic growth in Malawi have not reached the majority of the population. High rates of growth have had limited positive impact on the incidence of poverty³. Measured in terms of social indicators of health conditions, infant mortality and population below the poverty line, Malawi remains one of the poorest countries in the world.

Four principle causes of poverty have been identified as i) Low agricultural production which effects food availability and the ability of households to invest in inputs or improvements; ii) persistently low incomes among the majority of the population depress effective demand for goods and services; iii) low education levels make it difficult for the poor to move into new fields of employment and poor households require children to work as productive labour in order to survive and; iv) poor health through inadequate nutrition, poor access to health facilities and exposure to health hazards increase the vulnerability of the poor.

Small-scale fishing communities are rarely singled out during the analysis of poverty in Malawi, although, in sub-Saharan Africa as a whole they are generally regarded as being a group likely to live in poverty. Poverty is also rarely restricted to homogenous and easily identified groups within society. Individuals and households belonging to occupational, social and ethnic groups generally identified as poor are constantly moving between different degrees of poverty. Changes in environmental conditions, the relationship between different social and economic groups, seasons, stages in the household development cycle, and the access of families in different areas to different resources can determine important differences in the features and factors of poverty. The fishing community in Malawi is not a homogenous group in either economic, social or ethnic terms. Different fisheries have different structures which involve people from diverse social situations Campbell and Townsley (1994).

Before sectoral strategies to address poverty alleviation are developed, some understanding of the features of poverty are necessary. Low incomes, poor living conditions, limited access to water, food insecurity and poor health are all indicators of maternal deprivation. Although there is no evidence that fishing communities are any worse off than other rural communities, those on the periphery undoubtedly lack certain social services. Almost all earnings are spent on immediate consumption with little opportunity for the accumulation of capital. The poor are less able to cope with sudden changes in their economic, social or physical environment. A key feature of poverty is that, given their vulnerability to food shortages and their lack of assets, poor households are unable to risk their meagre assets in new activities or attempts to change their situation. These features force the poor into decisions which give priority to immediate conversion of resources into goods for consumption.

³ The government defines poverty as a condition characterized by serious deprivation of basic needs in terms of food, health, shelter, education and a lack of means and opportunities to fulfil these basic needs

There are a number of factors which contribute to poverty in small-scale fishing communities in Malawi.

Macro-Economic Policies

Fiscal policies: Structural adjustment and stabilisation measures have entailed a general reduction in Government expenditure and a consequent reduction in Government services.

Monetary Policies: Formal credit provision for small-scale fisheries is limited and the informal sector is poorly developed. High interest rates⁴ will have a significant impact on the suitability and effectiveness of any formal credit delivery. High levels of inflation have affected the buying power of rural wages and incomes, and these have had serious impacts on poor households, particularly those reliant on wage labour.

Exchange Rate Policy: The major part of Malawi's fish production is for domestic consumption and foreign exchange fluctuations have had a very limited impact on fish marketing. The regular realignment of exchange rates has however, had an important impact on the cost of inputs.

Government Support

Within agriculture there has been a strong bias in the past towards support of the estates sector, encouraging export commodities over food crop production. This has, in turn, affected the numbers of people turning to fisheries as an alternative source of income. Government services generally find it easier to deal with formal sector activities, while the vast majority of rural enterprises, including fishing enterprises, are in the informal sector.

Extension skills in the Fisheries Department have been oriented towards the delivery of extension messages usually aimed at increasing production or the regulation of fishing effort. At present the extension agents do not have adequate skills to engage the community in a dialogue which will identify the problems as perceived by the different groups within the community, and to allow their participation in developing solutions to those problems.

Population

The effects of high and rapidly increasing population density on the environment are already evident as resources, notably those of fuelwood, are being rapidly depleted. Population growth is impacting on practically all aspects of the social and economic life of the country. Landholdings are increasingly fragmented and more and more farms are smaller than the minimum viable size. Food security and self-sufficiency in food grains is under threat as the growth rate in agricultural production is lagging behind population growth. The strain on the already inadequate public services in the country is increasing.

Population pressure is leading to increasing mobility as more people are forced to seek out employment or new resources to exploit. Fisheries in Malawi have always had some tradition of migration, largely in response to seasonal changes. As competition for resources grows, these movements seem to be on the increase and resident fishing communities face growing competition for access to, and control of, fisheries resources while the members of migratory fishing teams often work under poor conditions and for very low pay.

Resource Characteristics

Seasonality can contribute significantly to poverty levels in fishing communities, especially when normal patterns of seasonal change shift and communities have to adapt their fishing strategies to new patterns. The productive assets typically held by fishing communities, such as fishing gear and boats, are exposed to considerable risk. Gear is often destroyed and boats lost due to bad weather and theft. The sudden loss of productive assets can plunge households into poverty. The perishability of fish creates a distinct set of problems for fishing communities. Generally, fresh fish commands the highest market value, but limited marketing

⁴ Currently 46% per annum

infrastructure in Malawi, and the remote location of many fishing communities, means that fish must be processed at the landing site before moving it to marketing centres

As population and competition for available resources increase, common-property resources left unexploited at present are more and more likely to be appropriated by someone else. The common property nature of fisheries has been blamed for the problems of chronic poverty amongst fishermen. Figure 2 shows a monetised yield curve, that is sustainable yield multiplied by an assumed constant price. The optimum economic level of exploitation is shown at MEY, that is where the marginal revenue (marginal product) equals the marginal cost, $MR = MC$. Since the cost of input factors are assumed to be unaffected by the amount of fishing effort, the marginal cost and average cost are identical and assumed to be constant (shown by the horizontal average cost and marginal cost curve). These costs are assumed to include an opportunity income for the fishermen, that is the income that could be earned in other comparable employment. OMEY is the economically optimum level of effort that should be expended on this fishing ground, and the resource, at this level of effort will provide the maximum net economic yield indicated by the shaded area (resource or Ricardian rent).

The fish resource is not private property, hence the rent it may yield is not capable of being appropriated by any one person. Each fisherman is more or less free to fish wherever he pleases. The result is a pattern of competition among fishermen which results in the dissipation of the rent of the intramarginal ground. Effort continues to be attracted into the fishery to the point where average revenue equals average costs (open-access equilibrium).

Wright (1990) says that the exploitation of a common-property resource is neither necessary nor sufficient to cause poverty in a community. At the margin an individual will tend to direct investment to the enterprise that appears to offer the highest return. Such an assumption is reliant on the absence of entry and exit barriers. Because of the dynamics of this entry the level of effort often exceeds the level indicated by open access. Effort will then exit the fishery at a rate dependent on the ease of exit. If this is slow there may be a considerable period where effort is greater than the open access equilibrium level. There is a disequilibrium and fishermen will earn even less than their opportunity cost would suggest. The immobility of fishermen, their attachment to their local community and to their occupation prevents an equilibrium of labour income being established with that of other industries.

Wright agrees that problems of low opportunity cost and reduced demand for labour can cause poverty, but asserts that they are associated with disequilibrium. He concludes however, that fisheries can attract poverty. In regions of high unemployment, open-access fisheries often act as an employer of last resort and attract individuals with low opportunity costs. The growing supply of surplus labour coupled with the lack of activities to employ that labour has forced down the opportunity cost of labour in Malawi. Given the low wages in most other rural sectors and the ease of entry into the fishery, work in fisheries is one of the few attractive labouring options.

Governments often exacerbate problems of relative poverty by providing assistance programmes that have perverse long-run effects. In the past it has been assumed that a fishermen's standard of living may be improved by either increasing his productivity, increasing prices received for his catch or by lowering his costs. In agriculture, productivity has been greatly increased through the benefits of technological change. The effects of technological innovation in fisheries have been demonstrated by Cunningham et al (1985) and by Whitmarsh (1990). Innovation will allow any given level of fish to be caught at a lower unit cost and this can be demonstrated on the variable price model by a shift in the long run average cost curve as shown in figure 3. Assuming that the fisheries resource is already exploited beyond MSY, it can be seen that yield will fall and although the cost of exploitation falls inducing more effort into the fishery, the use of more capital intensive technology may create a fall in employment. Those remaining in the fishery will still only just cover their costs at the new equilibrium level, Bland (1991).

By subsidising inputs, the long-run average cost curve shifts down in much the same way as in figure 3. With technological change overfishing results from the use of more productive

Figure 2 Monnet's field Curve

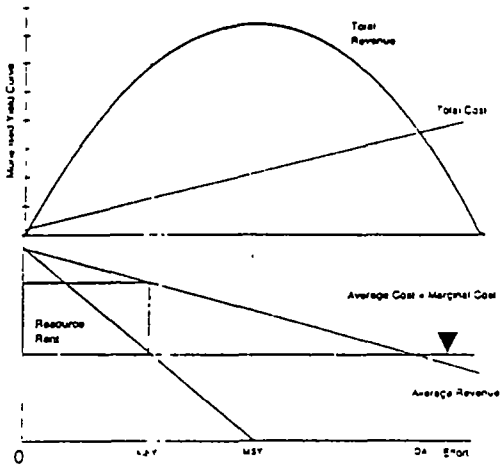


Figure 3 The Effect of Increased Productivity

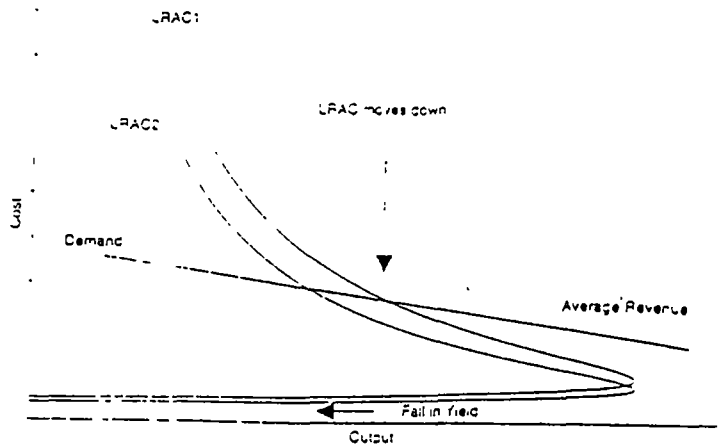


Figure 4 Increased Fish Price

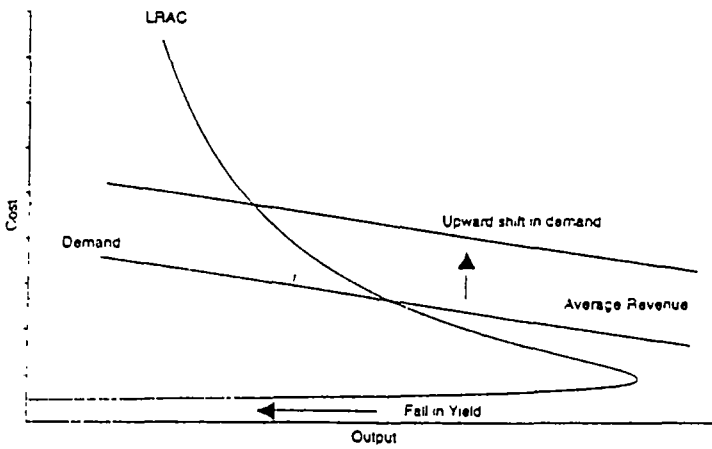


Figure 5 Fish Production in Lake Malombe (Tonnes)

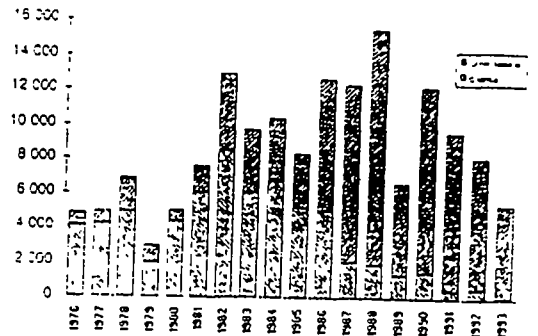
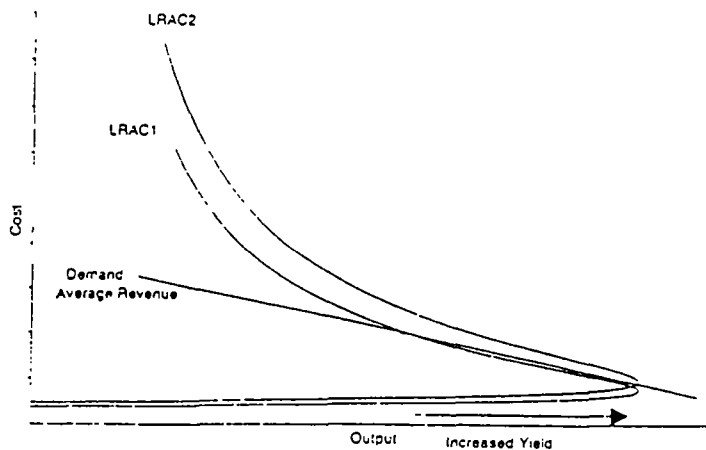


Figure 6 Increased Input Costs



vessels or gear types, while the use of subsidies promotes overfishing resulting from increased numbers of fishermen using more units of the original or cheaper vessels. While employment may increase the fishermen themselves will be no better off and yield will again be reduced⁵.

The price received by the fishermen may be increased by improving post harvest technology that reduces spoilage and enhances value, or it may be brought about by the increased bargaining power when fishermen join an organisation such as a cooperative (Smith, 1981). An increase in the price can be represented by an upward shift in the demand curve as shown in figure 4. The increased price will induce further entry into the fishery and yield as a consequence will fall. Again without some control on entry, those fishermen in the fishery will only cover costs and thus be no better off as a result of the price increases.

An increase in the cost of inputs will shift the long run average cost curve upwards as shown in figure 5. Marginal fishermen will be forced out of the fishery until a new bioeconomic equilibrium is achieved. Sustainable yield and total revenue will increase, but the number of fishermen will decrease. Once again, those fishermen remaining will only cover their costs.

Of all these measures then, only an increase in input costs serves to decrease the effort and increases the sustainable stock. This in itself does not help solve the problem of low income. A lack of management of the resource base means that not only will poverty alleviation strategies fail, but both the level of exploitation and the exploitation methods will evolve to the point where they degrade the environment. Catch rates fall and size and species composition change which have a direct effect on specific groups within the community. Where fishermen catch fish for subsistence purposes, falling catch rates have a direct impact on household nutrition and food security. Species composition changes may affect specific groups who target those species. If the species targeted by the poor is removed by selective over-exploitation they may not have the means to redirect their fishing effort to harvest other species. Smaller fish generally fetch lower prices than larger ones so incomes will fall accordingly. Changes in fish size may also affect the type of gear required to catch the fish and the very poor may not have the capacity to change their gear. In these ways the poor can be adversely selected against by poor management of the fishery. Such changes may be worsened where decisions are made to exclude certain people from the fishery in order to improve management. In such cases the poor, who may have little participation in the decision making process, may be excluded.

Resource Management

In the past, management initiatives for capture fisheries, in Malawi and elsewhere, have been based almost entirely on recommendations emanating from fisheries biological research. When considering the past failures of fisheries management throughout the world, this biological orientation has been identified as one of the causes. Fisheries management is about people more than it is about fish. To try and manage a fisheries resource without considering the people who harvest this resource is naive. Attempts to manage fisheries in Malawi have focused on passing legislation and regulations to limit fishing activity. Unfortunately, these measures are extremely difficult to enforce effectively, given the nature of small-scale fisheries in the country. What is more, from the point of view of poverty alleviation, they have failed to assess their impact on specific groups within the fishing and other resource-linked communities.

Effective resource management must involve the fishing communities, the current open-access nature of small-scale fisheries in Malawi must change to a limited access regime and this change must occur in parallel with the development of alternative income earning opportunities for lakeshore communities. Therefore, new approaches to fisheries resource management by encouraging greater community, or user, participation, are being developed alongside the promotion of alternative economic opportunities.

⁵ Secondary employment at reduced output may well fall

Participatory Fisheries Management Programme

Lake Malombe is a relatively small and shallow lake just to the south of Lake Malawi (Figure 1). It covers an area of 390Km² with an average depth of 4m. Lake Malombe is eutrophic and relatively productive. In 1988 the lake produced over 10,000 tonnes (17% of Malawi's total catch). Increasing population pressure in the district (over 5%) have led to increased competition among fishermen on the lake and the increasing use of illegal fishing practices. As a consequence the catches of chambo (*Oreochromis spp*) has declined dramatically and there are now signs that total catch is declining (Figure 6).

The participatory fisheries management programme (PFMP) is essentially an awareness raising campaign to enable the fishing communities around Lake Malombe and the Upper Shire River to understand the long term implications of overfishing. The programme concentrates on extension and education through the fora of newly formed community level institutions and by supporting fishermen to adopt sustainable harvesting techniques through the provision of limited financial support. Further financial assistance is directed towards those members of the sector wishing to leave the fishery and to identifying and supporting alternative sources of income generation within these communities. The programme is implemented by the Fisheries Department with external donor support.

The programme has so far concentrated on the formation of the Participatory Fisheries Management Unit and the Community Liaison Unit, both in Mangochi and of twenty four beach village committees around Lake Malombe and the Upper Shire River. Extension workers received further training in community development, group dynamics and communication skills. Additional extension workers were made available for the programme and a regular dialogue between these agents and the beach village committees was established.

The Fisheries Department recognises that a co-management approach is not a panacea to the problems of small-scale fisheries management in Malawi. Indeed there will be considerable problems in changing an established approach. This change involves significant costs in the short-term. But government is committed to decentralisation and community involvement and the approach in Malombe will be closely monitored and adapted to other fisheries in Malawi as appropriate.

Work has begun on the identification of alternative economic opportunities. Such opportunities must be demand driven. Surplus cash must exist in these communities to drive this demand. Recent studies suggest that surplus capital does exist in elements of these communities and that this effective demand must be identified and addressed as quickly as possible before worsening economic conditions reduce this surplus.

Conclusion

The single most important contribution that can be made to poverty alleviation through the sector in the short to medium term is effective resource management and this must be addressed on two fronts. The open-access nature of small-scale fisheries in Malawi must change and this must be accomplished with the participation of fishing communities. It must have their understanding and majority support in order to be successful.

Whether management initiatives are implemented centrally by government or through community involvement, there will be associated costs. A programme of limiting access to the fishery will disadvantage some while advantaging others. Limit access will fail if alternative opportunities do not exist. Therefore a major effort needs to be directed at developing alternatives for which a cross-sectoral approach is necessary.

Such an approach that combines community participation, limited access and the development of alternative economic opportunities offers the only long-term solution to addressing the downward development spiral of poverty and environmental degradation that exists in Malawi today.

References

- Bailey, C. 1988 Optimal Development of Third World Fisheries. North-South Perspectives on Marine Policy. Westview Press Inc.
- Bell, F.W. 1986 Mitigating the Tragedy of the Commons. Southern Economic Journal 52(3).
- Berkes, F. (Ed.) 1989 Common property resources - Ecology and community based sustainable development. Belhaven Press.
- Bland, S.J.R. 1991 Managing Artisanal Fisheries and their Development. Centre for Marine Resource Economics, Portsmouth, England.
- Bland, S.J.R. 1992 Community Based Management for the Fisheries of Malawi. Overseas Development Administration, U.K.
- Bland S.J.R. and Donda, S.J. 1994 Management Initiatives for the Fisheries of Malawi. Fisheries Bulletin Number 9. Fisheries Department, Government of Malawi
- Bland, S.J.R. 1994 Planning, Monitoring and Evaluation Part 1. Fisheries Policy Development, Sectoral Planning and Project Preparation. Fisheries Bulletin Number 12. Fisheries Department, Government of Malawi
- Campbell, R.J. and Townsley, P. 1994 Small-Scale Fisheries of Malawi; Policy Discussion Document. Overseas Development Administration (Research in progress)
- Ciriacy-Wantrup, S.V. and Bishop, R.C. 1975 Common Property as a concept in Natural Resources Policy. Natural Resources Journal 15(4).
- Clark, C.W. 1973 The Economics of Overexploitation. Science 181
- Copes, P. 1972 Factor rents, sole ownership and the optimum level of fisheries exploitation. The Manchester School of Economic and Social Studies 40(2).
- Cunningham, S., Dunn, M.R. and Whitmarsh, D. 1985 Fisheries Economics. An Introduction. Mansell Publishing Limited, London
- Feeny, D., Berkes, F., McCay, B.J. and Acheson, J.M. 1990 The tragedy of the commons: Twenty-two years later. Human Ecology Vol. 18(1).
- Gordon, H.S. 1954 The Economic Theory of a Common Property Resource: the Fishery. J. Pol. Econ. 62
- Jentoft, S. 1989 Fisheries co-management. Delegating government responsibility to fishermen's organisations. Marine Policy 13(2)
- Keen, E.A. 1983 Common property in fisheries: Is sole ownership an option. Marine Policy 7(3)
- Panayotou, T. 1988 Management Concepts for Small-Scale Fisheries - Economic and Social Aspects. FAO Fish Tech Pap 228
- Pearse, P.H. 1974. Property rights and regulation of commercial fisheries. J. Bus. Admin. 36(7):711-867
- Pomeroy, R.S. 1991 Small-Scale Fisheries Management and Development. Towards a Community-Based Approach. Marine Policy Jan. 1991
- Rettig, R.B., Berkes, F. and Pinkerton, E. 1989 The future of fisheries co-management: a multidisciplinary assessment. In Pinkerton, E. Co-operative management of local fisheries. New directions for improved management and community development. University of British Columbia Press, 1989.
- Scott-Gordon, H. 1954 The economic theory of a common property resource: the fishery. Journal of Political Economy 62(2).
- Sodzapanja, G., Alimoso, S.B. and Bland, S.J.R. 1994 Report of the 1993 Annual Frame Survey. Fisheries Bulletin Number 8. Fisheries Department, Government of Malawi
- Sodzapanja, G., Mwenekibombwe, L.H. and Bland, S.J.R. 1995 Report of the 1994 Annual Frame Survey. Fisheries Bulletin Number 18. Fisheries Department, Government of Malawi
- Stokes, R.L. 1979 Limitation of fishing effort: an economic analysis of options. Marine Policy 3(4).
- Stollery, K.R. 1988 Cooperatives as an alternative to regulation in commercial fisheries. Marine Resource Economics Vol. 4
- Wright, C.S. 1990 Is Poverty in Fishing Communities a Matter of Tragedy or Choice? Inst. Fish. Analysis Simon Fraser University