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Chapter 3

Fisheries Management in Malawi: a Patchwork of Traditional, Modern, and Post-modern Regimes Unfolds

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Introduction

Malawi is a land-locked country in southern Africa that is renowned for its warm hospitality, scenic beauty, and aquatic biodiversity (estimated at 500–1000 endemic species of fish). However, this nation has recently also been burdened by a series of droughts, the HIV/AIDS epidemic, which is currently estimated to infect 940,000 Malawians, (UNAIDS 2006) and a poor economy, that combine to give it one of the lowest Human Development Index rankings in Southern Africa (UNDP 2005). Given these livelihood constraints, the aquatic biodiversity of Lakes Malawi, Malombe, Chiuta, Chilwa, and the Shire River (see Figure 1) is all the more important, as it provides primary or secondary livelihoods for an estimated 350,000 people, (FAO 2005) and contributes to the incomes of an estimated 1,000,000 people (Malawi 1999). Finally, fish is the cheapest source of animal protein available to Malawians, and due to population growth, the annual per capita amount of fish available has decreased from 12.9 kg in 1976 to just 3.6 kg in 2001 (FAO 2005).

Over the course of the later 1900s, the growth of fisher populations and the expansion of new, more efficient fishing gears, combined with poor government regulation, led to the declines of several key commercial fish stocks (Figure 2). These declines culminated in the 1993 collapse of the *chambo* (*Oreochromis* spp.) fishery (from 4–7,000 tons per annum down to about 200 tons per annum) in Lake Malombe (a small lake connected to Lake Malawi by the Upper Shire River), prompting a significant change in the Malawi Fisheries Department's (FD) management philosophy.[1] Recognizing that it lacked the local legitimacy and resources needed to enforce its centralized management regime, the government embarked on a process of devolving management authority to fishing communities.

A brief discussion of the history of fisheries management in Malawi will allow us to better understand the successes and failures of fisheries management devolution that has produced a patchwork of unique fisheries management regimes in what might be called a de facto adaptive management regime. The extent to which each regime succeeds must

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[1] Although overall catch trends in Lake Malawi have continued to increase, the declining *chambo* stocks have forced a shift in effort to small pelagic fish of much lower size and commercial value.

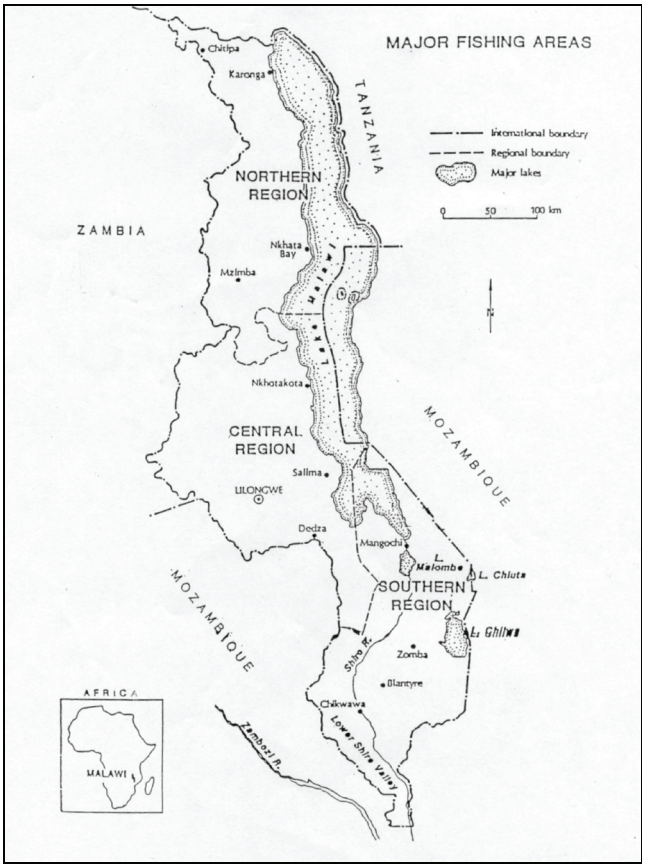


Figure 1. Map of Malawi and its Major Fishing Areas.

be recognized as being inherently connected with an array of local, national, and international actors' and institutions' attempts to control access to resources and power over time. Only once we have understood the conflicted roles played by chiefs, communities, and the government in each case study can we hope to improve the government's ability to encourage further devolution of fisheries management. The overall trajectories for these groups' influences in the management of Malawi's fisheries are illustrated in Figure 3, and the sources of these changes are explored in the sections to come. Additionally, while NGOs and donor agencies have never had any official mandate to govern Malawi's fisheries, the incentives provided through their influence on policies, funding, and community mobilization cannot be ignored, and are explored as well.

Precolonial Fishing Institutions and Practices

"Traditional" fishing methods varied in terms of their technologies, however, they can be roughly grouped and discussed on the basis of the numbers of people who participated in their construction and operation, and who had rights to the catches. Small-scale technologies such as, spears (*vyomba*), fishing hooks (*mbeja*), reed traps (*mono*), gillnets (*machela/chilepa*), and a variety of dip nets (*njero/pyassa/khombe*) were constructed, owned and operated by individual fishermen (or sometimes the

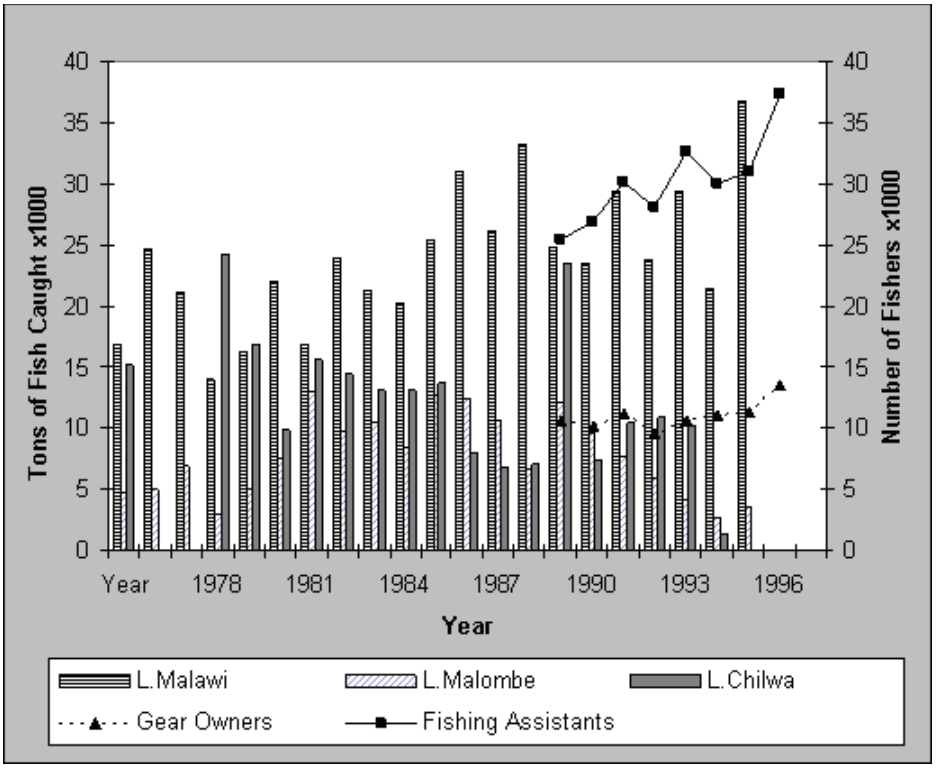


Figure 2. Trends of Fish Catches and Fisher Participation in Malawi's Key Traditional Fisheries (Bulirani et al. 1999).

owner accompanied by an assistant) for use in rivers, streams, and the lakeshore (Livingstone and Livingstone 1865; Hoole 1955; Mzumara 1967; Mandala 1990).[2] Although individual fishermen would regularly give tribute (in the form of fish) to their local chiefs, the fishermen had few limits on the types of fish that they could catch, and had sole ownership of the fish caught with their fishing gears (Wilson 1951; Mandala 1990; Chirwa 1997).[3]

A separate group of fishing technologies involved communal construction, ownership and regulation of larger-scale fishing methods, including beach seines (*mkwawo/khoka wa pans*i) used on the lakeshore; and plant-based poisons (*mkhondo/katup*i) and fishing weirs (*vyelo/biiu*) used in rivers. As these large-scale fishing techniques required a coordinated investment of labor from a large number of community-members to succeed, and as their use prohibited any other harvests of a local fish stock, various forms of regulations became institutionalized by the chiefs (Munthali 1994). The most technologically and institutionally advanced traditional fishing institution, and the one that continues to be practiced today, is that of the fishing weir. The use of fishing weirs has been documented along many major Southern and Eastern African river systems, including the: Zambezi (Scudder 1960), Lake Victoria's Nyanza District (Fosbrooke 1934; Whitehead

[2] Russell—Interviews with chiefs and Traditional Authorities—2004–03-10, 2004–04-08, 2004–04-12, 2005–03-20.

[3] Note an exception in some areas, as described by Mandala (1990), where specific species of fish belonged to the chief, such as the catfish called "*mlamba"* (*Clarias gariepinus*) and the lung fish, locally called "*dowe"* (*Protopterus annectens brieni*) in the Lower Shire River.

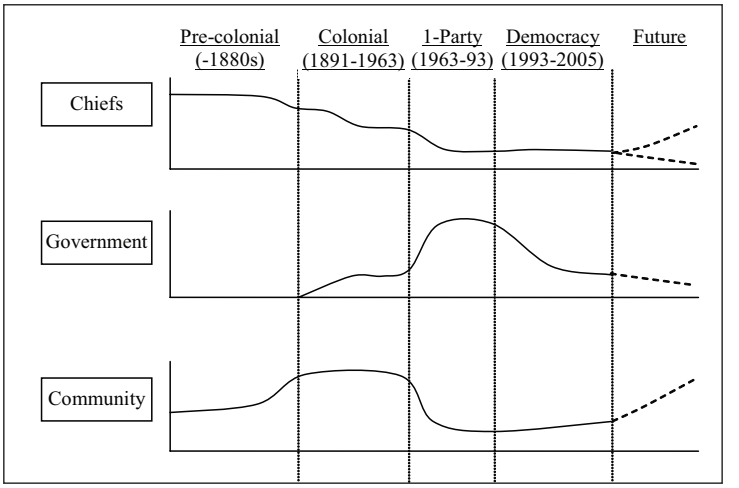


Figure 3. Trends of stakeholder roles in fishing institutions on Lake Malawi.[4]

1958), and the Zambian Barotse Floodplain (Bell-Cross 1971), and Bangweulu Swamp (Brelsford 1946). In the case of Lake Malawi, they have been documented on almost all major and minor rivers that flow into the lake (Figure 4). Additionally, fishing weirs were constructed in the rivers entering the smaller Lake Chilwa, and across the mouth of the single outlet of Lake Malawi, the Shire River.

The common characteristic that motivated the evolution of such elaborate fishing technologies was the passage of the potamodromous (fish that migrate from lakes to spawn in streams and rivers) *mpasa (Opsaridium microlepis), sanjika/mperere (Opsaridium microcephalus*) and *ntchila/ningwe (Labeo mesops).* Aside from the months when these fish migrate upstream, the rivers are open to all forms of fishing by both men and women. However, once the weirs are constructed each year, the exploitation of spawning runs is strictly controlled by local chiefs and all other fishing in the rivers is banned.[5] Furthermore, there is a strict hierarchy to the positioning of peoples' fishing traps along this barrier with the best slots (generally those near the banks) allocated to the chiefs, their advisors and relatives. The chiefs abilities to monopolize the best fishing locations stemmed from both their status as temporal rulers of the land and their roles as mediators with the spirit world which could influence environmental phenomena such as fish catches, rainfall, safety from crocodile and snake bites, etc. (Wilson 1939; Charsley 1969; Kalinga 1974; White 1987; Mandala 1990; Busse 1995).[6]

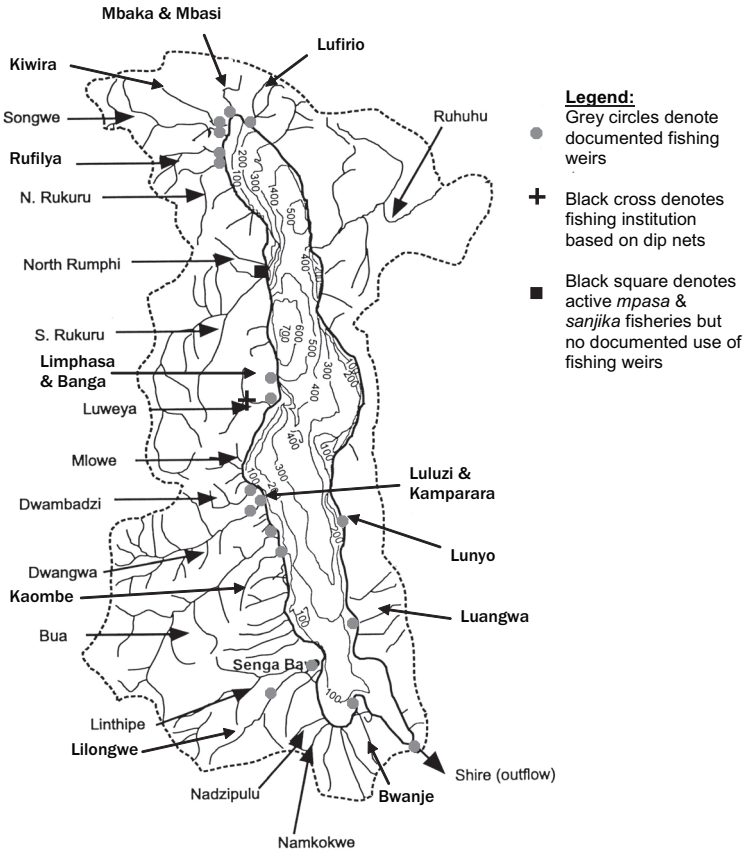
Social and Economic Change for the Lakeshore Peoples During Early Colonialism (1890–1930s)

Even before Great Britain officially colonized the Nyasaland Protectorate in 1891, interactions between lakeshore communities and foreign missionaries and businesses were transforming the fishing economy in many ways. British missionaries established a number of schools and missions in the

[4] While the stakeholder roles shown are based on the authors' analysis, the conceptual layout emerged in a discussion with consultant, John Balarin during a CBNRM conference in Zomba, Malawi, 11–25-03.

[5] Russell—Interview with Traditional Authority—2004–05-31, Russell – Group interview with river fishers—2004–04-07.

[6] Russell—Interview with chief - 2004–05-03; Russell – Field notes of night fish sales—2005–03-01.



Watershed map adapted from African Lakes and River Research Group, U. of Waterloo website: http://www.science.uwaterloo.ca/departments/biology/research/uwaeg/african_lakes/Malawi.html.

Figure 4. Lake Malawi's Major Tributaries with Documented Fish Weirs.[7]

[7] Documentation of the Tanzanian river fishing weirs: Documentation of the Tanzanian river fishing weirs: Lufirio (Busse 1995; van Hekken 1986), Mbaka (Busse 1995; Charsley 1969; Bertram et al. 1942), Mbasi (Busse 1995), Kiwira (Busse 1995; Charsley 1969). Documentation of the Malawian river fishing weirs: Songwe (which is shared with Tanzania)(Busse 1995), Rufilya (Russell – Interviews with chiefs and fishers—2004–03-10; 2004–05-31; 2005–02-01), N. Rukuru (Lowe 1948), Luweya (Nangoma, 1991; Hoole 1955; Jackson et al. 1963), Limphasa (Jackson et al. 1963; Borley 1962), Banga (Jackson et al. 1963), Dwambazi (Hoole 1955; Russell – Interview with chief—2005–03-20), Luluzi (Russell – Interview with fishers—2005–03-06), Kamparara (Russell – Interviews with chiefs—2005–05-03, 2004–07-03, 2005–03-02), Dwangwa (Russell – Interviews with chiefs—2005–05-03, 2005–03-02), Bua (Tweddle, 1980; Russell – Interviews with chief and fishers - 2002–07-15a, 2002–07-15b), Kaombe (Bertram 1942 #78; Berry and Petty 1992 #77), Lintippe (Msosa, 1999; Bertram, 1942; Tweddle, 1980), Lilongwe (Lowe 1952), Bwanje (Namagonya, 1992; Tweddle, 1980), Luangwa (Bertram et al.1942) and Lunyo (Bertram et al. 1942). Fishing weirs around Lake Chilwa were documented by Mzumara (1967), and sources for the fishing weirs at the mouth of the Shire River were presented by McCracken (1987). The South Rukuru River (Tweddle 1980) was also recorded as having significant mpasa or sanjika fisheries, however although there is a good probability that weirs may have been used in this river at some point, neither their construction nor any institutionalization of the fishery harvest has been documented.

"Tongaland" lakeshore (present-day Nkhata Bay District) and Karonga District, enabling people from these areas to rapidly gain a dominant presence in labor, clerical, and military jobs for the colonial administration and foreign-owned commercial sectors (Kalinga 1974). In addition to these voluntary interactions between colonialists and the Malawian population, the colonial administration started to influence local communities in a more profound way with the 1889 introduction of a hut tax (White 1987).

Required to pay taxes in cash, large numbers of men were forced to migrate to the European-owned plantations in Southern Nyasaland in order to raise the funds needed (White 1987; Ng'ong'ola 1990). However, the poor labor conditions in Nyasaland's plantations rapidly led growing numbers of Malawians to seek jobs in the better paid mining and service sectors outside Malawi, in particular: the Rhodesias (today, Zimbabwe and Zambia), South Africa, the Belgian Congo (today, the Democratic Republic of Congo), Mozambique, and Tanzania (Tew 1950; Coleman 1974; McCracken 1977; Mandala 1990; Ng'ong'ola 1990; McCracken 2002). Among Nyasaland's migrant workers, much as was the case within Nyasaland itself, the more educated Northern ethnic groups (Tonga, Tumbuka, Ngoni, and Ngonde) quickly gained access to better paid jobs than did Nyasaland's other migrant workers (Tew 1950; McCracken 1977; White 1987). These Northerners, and in particular, the Tonga, would later become major investors in fishing gears throughout Lake Malawi.

The First Major Integration of the Lake Malawi's Fishing Economy into the Colonial Economy (1910–1930)

The first major period of change to the fishing economy of Lake Malawi occurred during and following World War I, a decade of extreme environmental shocks and economic opportunities in the southern Nyasaland region. The establishment of a roads network connecting nascent areas of economic and population growth in the plantation (Mulanje, Thyolo), administrative (Zomba) and commercial (Blantyre, Limbe) centres of Southern Malawi created a new demand for large scale fishing operations (Perry 1969). The arrival of large numbers of British and South African troops in Zomba and Blantyre during WW I, which coincided with episodes of fish scarcity in the nearby Lake Chilwa, were a key factor that prompted larger scale investments in fishing and fish trading in Lake Malawi (McCracken 1987).

During these early decades of colonialism, although the immigration of men due to the colonial hut tax drastically changed the demographic makeup of lakeshore communities, the British administration largely left the management of the fishing industry to itself. As quoted by McCracken, the colonial sentiment toward the African fishing industry was that:

"no interference, official or otherwise, could be of any benefit to the native, who makes his own string, his nets and his canoes and his basket traps…[and who] puts out his nets when the Lake allows him to do so" (McCracken 1987).

Therefore, the only regulations that limited fishing effort would have been those imposed by chiefs (Hoole 1955; Chirwa 1996). In fact, not only were the chiefs the only regulatory force in fishing, many chiefs in the South manipulated social relationships in their communities, making use of free labor to accrue great wealth with the growth of the fish markets in the South (Chirwa 1996).

The First Colonial Fishing Policies Result in Erosion of Chieftain Support (1930–1950)

Although the colonial government had seen no need to regulate the fishing industry during the first decades of its administration, growing concerns over the declining

authority of chiefs, conflicts between European and African fishermen (see below), deforestation, and perceived unsustainable and unsporting traditional fishing practices led the government to impose a number of new regulations in the 1930s (Chirwa 1996). One factor that prompted the change was the low water levels in Lake Malawi in 1910–1920s that enabled fishermen (both African and European) to construct a impassable barrage of fishing weirs across the outlet of Lake Malawi into the Upper Shire River. By the 1930s, competition over positioning of fishing weirs at the river mouth became a source of conflict between African chiefs and Europeans entrepreneurs, and in this case, the colonial government sided with the chiefs against the Greek and German entrepreneurs, banning them from fishing within 2 mi of the river mouth (McCracken 1987; Chirwa 1996). However, the government also introduced regulations requiring fishers to leave a gap in the middle of the fishing weirs to allow some adult fish to pass through, and the rising lake levels eventually washed away all weirs in 1935.

While this latter regulation at the Shire River mouth may have been warranted due to the low water levels, the colonial government's additional bans on the use of fishing poisons and the requirement that gaps be left in the middle of fishing weirs across other rivers has been criticized with some merit by Chirwa (1996) and Msosa (1999). They argue that in most cases these fishing techniques were sustainable, and that these regulations were primarily motivated by colonial administrators' elitist Euro-centric values that regarded fishing weirs and poisons as "destructive, primitive, unprofessional and unsporting" (Chirwa 1996; Msosa 1999).

Colonial regulations of the fishery were limited in these early years, but the government's enlistment of the chiefs as local representatives of government through the policy of "Indirect Rule" would irrevocably change the relationships between chiefs and their constituents. Whereas many chiefs' roles as intermediaries with the spirit world had historically given them a popular mandate to govern their areas, the growing Christianization and economic independence of the Nyasaland population had diminished their authority (Wilson 1939; Mandala 1990). Through indirect rule, however, chiefs found an alternative source of authority as they were officially empowered to hear local legal cases and maintain a treasury, were required to establish a quota system for canoe trees harvested, and retained a portion of hut tax and canoe royalties collected in their jurisdictions (Woods 1990; Willis 2001). Many chiefs therefore embraced the newly-given powers and sources of wealth that the colonial government's indirect rule policy gave them (Nyasaland 1934; Nyasaland 1949; Woods 1990; Willis 2001).

Ironically, the unpopularity of the tree tax and numerous other conservation regulations that encroached on traditional open-access values meant that many village chiefs who supported the governments' regulations suffered a severe erosion of their communities' trust and cooperation (Nyasaland 1949; Banda 1977).[8] Due to popular resistance, therefore, most conservation regulations were regularly ignored or circumvented during the 1930–1940s, and colonial game wardens were frequently willing collaborators with the 'poachers' (Wilson 1951; Hoole 1955; Njaidi 1995; Chirwa 1996).

Growth of Non-African Commercial Fishing Industries (1930–1960)

With the rapid growth of markets for fish in the Southern Highlands and the improved transportation infrastructure allow-

[8] President Banda claimed that forests were common property goods in traditional Malawian society, to which no one could be refused access or charged for the rights to harvest timber.

ing rapid truck transfers of fish to markets, a number of European settlers embraced the new investment opportunities in Lake Malawi's fisheries (Williams 1969). The Greek Yiannakis brothers were the first and largest investors in commercial fishing in Malawi, and they leased several plots of lakeshore land where they started fishing with imported beach seine nets in 1934. They added small scale ring-nets to their repertoire in 1938 (McCracken 1987; Chirwa 1996). Additionally, they purchased four trucks which they used to transport fresh fish to Zomba and Blantyre, and from 1938 they also exported dried fish to plantations in Southern Rhodesia (today, Zimbabwe) (Bertram et al. 1942).

The successes of the Yiannakis brothers stimulated a large number of other Europeans and Asians to invest in both the fishing and fish trading businesses, though the Yiannakis remained the only year-round fishing operation up to 1940 (McCracken 1987; Chirwa 1996). Beach seine fishing for *chambo* was the most important fishery for these companies; however, ring nets also contributed some *chambo*, and gillnets were used to target mostly "*ntchila*" (*Labeo mesops*) (Lowe 1952).[9] The sharp growth of the nonAfrican commercial fisheries in their early years (the late 1930s), and in particular during World War II, was due to a steady increase in fishing effort. Due to poor enforcement of record-keeping standards prior to 1946, however, Lowe (1952) judged the number of fish caught in that year to be significantly lower than that in 1944, raising concerns that the fishery was being exploited beyond a the level of maximum sustainable yield. This conclusion was reinforced by the declines in the proportions of inshore *chambo* species (*Oreochromis shirana, O. saka, O. squamipinnis*), and increased catches of the open-water *O. lidole* and juvenile *chambo* (Lowe 1952).

In comparison with the colonial government's supportive attitude towards Anglo-Saxon planters, the nonAnglo-Saxon, nonProtestant, nonEnglish-speaking Greek fishers were seen unfavorably, and in most conflicts with African fishers, the colonial government sided with the Africans (McCracken 1987). In addition to ethnic bias, this tendency was motivated by the role that the fishery played in providing both cheap food supplies for plantation workers as well as hut tax revenues for Africans (McCracken 1987; Allison, Mvula et al. 2002). However, the relationship between Greek and African fishers was not a simple one of colonialist capitalists threatening small-scale African fishers' livelihoods. In fact, as will be discussed further in the next section, many African chiefs had entered into exclusive trading relationships with European and Asian fish traders, denying local fish traders access to fish for local sale. In contrast, the nonAfrican fishers supported the small-scale local fish traders by selling a portion of the fish to traders at their depot as well as selling fish from their trucks at stops along the main road (McCracken 1987; Chirwa 1996). Regardless of the government's disapproval, Yiannakis Bros. remained the dominant commercial fishing operation in Malawi in the 1950s, during which time a significant proportion if its fishing activities was conducted with motorized trawlers (McCracken 1987).

Advent of Western Scientific Management, Encouragement of African Entrepreneurs, and the First Enclosures of the Africans' Fisheries (1940–1960)

The lack of a comprehensive research and management program for Lake Malawi's fisheries had largely been due to the low eco-

[9] 10–20% of beach seine catches were composed of other species (primarily catfish: *Bagrus* spp. *Clarias* spp.), although these, along with long line catches were generally not recorded.

nomic importance of the fishing economy in relation to exported cash crops such as cotton, tobacco and tea (McCracken 1987). During the late 1930s to 1950s, however, a number of research programs documented the ecological, social, and technological characteristics of fishing industries in Lake Malawi, and thereby set the scene for an era of "scientific" fisheries management (Berry and Petty 1992).

An exhaustive survey of Lake Malawi's fish stocks and fishing industries by Bertram et al. (1942) concluded that the fish stocks of Lake Malawi were under-exploited. Furthermore, they recommended that the expansion of both European and African fishing industries be encouraged, though in reference to the *chambo*-dominated (*Oreochromis* spp.) European fishing industries, they suggested that no more than a three-fold expansion by the European-owned fishing industry should be permitted. (Bertram et al. 1942) However, less than a decade after the Bertram et al. (1942) report, Lowe's research showed that the outer limit of expansion in the nonAfrican fishery had already been surpassed (Nyasaland 1946; Lowe 1952). Though she had no data for the African fishery, the limited catch data from the 'European' fishery suggested that the maximum sustainable yield (MSY) for the most important *chambo* fish stocks in the southeast arm of Lake Malawi had been exceeded and that the current harvests were catching a significant proportion of juveniles (Nyasaland 1948; Lowe 1952). Lowe, therefore, called for a comprehensive fisheries management policy with the stated aim "to establish a rational fishery so that the optimum yield of *Tilapia* may be cropped from Lake Nyasa each year over an indefinable period" (Lowe 1948; Lowe 1952). Her management recommendations, which included restrictions for both the African and nonAfrican fisheries, were primarily aimed at protecting the breeding movements and habitat of *chambo* (Lowe 1948; Lowe 1952).

Despite Lowe's recommendations, the colonial government only applied fishing regulations to the primarily Greek-owned commercial fishers. The African fishery regulations were not enforced due to combination of factors: a desire to promote African entrepreneurialism, a dislike of the Greek fishing businessmen, and the political concerns regarding the impossibility of enforcing these regulations on the African fishery. This position was defended by the Director of the Department of Game, Fish, and Tsetse Control, Mr. H. J. H. Borley, by positing the classical image of Africans living in equilibrium with nature:

"Left to themselves I do not believe that the African fishermen would over-fish for they tend to decrease their effort with decreasing abundance, whereas nonnative fishermen, bound by capital investments, tend to increase the scale of [their] activities in order to offset the drop in catch per unit effort" (Lowe 1948).

Even though African fishing behavior was seen as benign, the lack of control over 'wealthy' African fisher entrepreneurs led the government to pass further regulations to strengthen lakeshore chiefs' control over the fishery. These regulations required all African fishermen to purchase fishing licenses from the lakeshore chiefs (at prices that the chiefs established), allowed chiefs to limit access to local fisheries, and gave chiefs the right to impose price controls over fish sales (McCracken 1987; Chirwa 1996; Hara 2001). However, given that the chiefs had vested interests in the fishing economy and their existing unpopularity for collection of hut and canoe taxes, these regulations too were very unpopular among fishers and traders. Consequently, fishers and traders collaborated to circumvent or ignore the chiefs' rules, resulting in the further marginalization of chiefs' as local leaders (Chirwa 1996; Allison et al. 2002).

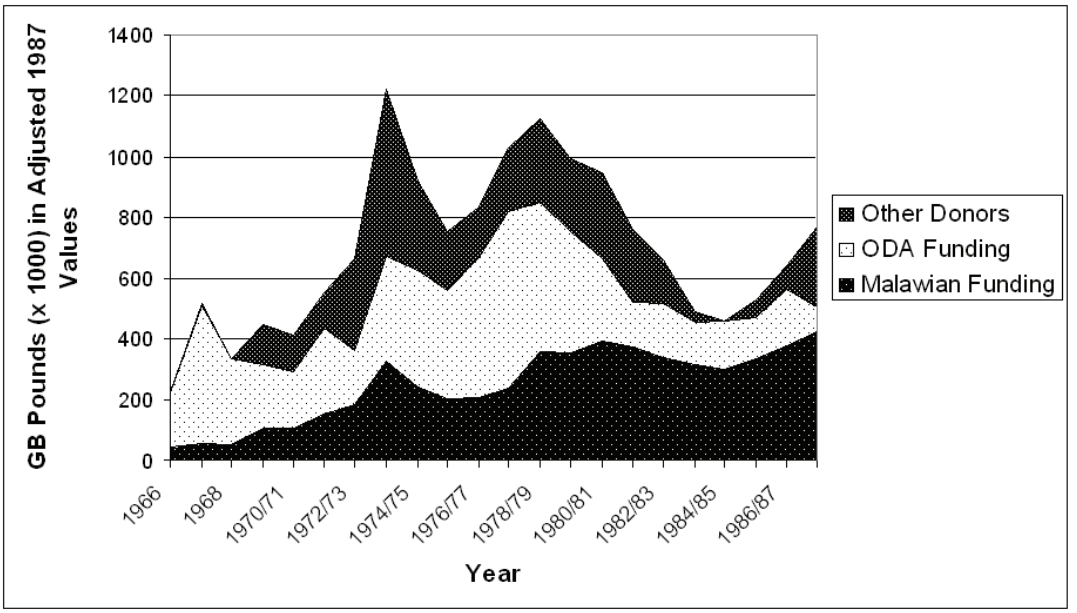


Figure 5. Malawi Fisheries Department Sources of Funding, 1966–1988 (Jones et al. 1990).

Independence Brings Growing Conflicts Between Government and Fishers, Leading to Fish Stock Collapse (1963–1993)

The end of colonialism brought a new government, but due to the high level of antagonism that the independence struggle had aroused against the colonial extension services and the chiefs, the new president, Dr. H. Kamuzu Banda, found that he had inherited a demoralized civil service, and a rural population that resisted most interference with their livelihood activities (Thomas 1975). Nevertheless, while concern over anti-colonial sentiment had prevented the colonial fisheries authorities from enforcing implementation of their scientific management regulations against African fishers, the newly independent government, which claimed a mandate from the people, could no longer allow its regulations to be ignored. Initially funded almost entirely by the British Government's Overseas Development Adminstration (ODA) (Figure 5), the newly-created Fisheries Department (FD) was run by expatriates for the first 20 years after independence, and continued to call for 'scientific' fisheries management policies.

Of particular concern to the FD were the increasingly capitalized *chambo* fisheries in Lake Malombe and Southern Lake Malawi. This concern led to the establishment of a new Fisheries Act in 1974 which introduced the first comprehensive fishing regulations for both the "traditional" and "commercial" fishing sectors (Malawi 1974). In order to prevent conflict between the small scale and commercial fishers, commercial trawlers and ringnets were banned from key *chambo* breeding grounds and shoreline of Lake Malawi, and all commercial and traditional fishing gears received specifications as to their legal dimensions, mesh sizes, conditions of operation, and minimum fish lengths were established. Additionally, closed seasons were established for ringnets and beach seines in Lakes Malawi and Malombe, and the Upper Shire River (which connects Lakes Malawi and Malombe).

The most unpopular regulation among African fishers was the closed season on beach seine fishing during the time when adult *chambo* migrate to shallow waters and lagoons to breed. The highly autocratic government also invested relatively little effort to sensitize fishers of the justifications for these regulation, and many fishers remained poorly informed of the regulations' existence overall (Donda 2000). Over the course of the 1980s, popular resistance to fisheries regulation enforcement drove the government to increasingly repressive and violent measures which in turn caused an escalation of violence by fishers. This trend, which has been described in detail by Hara (2001), came to a climax when FD and elite 'Police Mobile Force' (PFM) officers tried to confiscate fishing nets from Mbaluku beach (in Mangochi District) on January18, 1989. On this day, fishermen attacked the government personnel with stones, oars and knives, leading to the serious wounding of two police officers and one FD inspector, and the police were only able to extricate themselves from the confrontation by firing warning shots from a machine gun (Hara 2001).

In addition to the direct conflicts that occurred over fishing practices, the government came into conflict with fishing communities over the alienation of lakeshore land. During the three decades of autocratic Banda government rule, large amounts of communally owned lakeshore land were leased or sold to private parties by the government for the promotion of tourism and agricultural development (Ferguson, Derman et al. 1993; Derman and Ferguson 1995; Chirwa 1996). Furthermore, in the case of the largest areas of alienated land, President Banda's personal business empire, Press Holding Company, was a dominant stakeholder in the planned business ventures, thereby providing these businesses with the full support of the government (Ferguson, Derman et al. 1993; Derman and Ferguson 1995; Posner 1995; Ihonvbere 1997).

After the Mbaluku-debacle, the services of the PMF were no longer used by the FD, and a brief discussion of the factors that contributed to the FD's failure to implement their policies is warranted. The escalation in fisherfolk resistance must be partially recognized as a symptom of a groundswell in the general population's disillusionment with the government's authoritarian and corrupt policies (Ihonvbere 1997). During this period, an elite clique within the ruling Malawi Congress Party (MCP)[10] dominated all aspects of government, whose governance was "characterized by 'top-down' flow to policy directives and government decrees [that were] largely 'irrelevant' to the needs of the people" (Posner 1995; Ihonvbere 1997). In relation to the management of the fisheries, therefore, a significant number of MCP members who had invested heavily the fishing and fish trading industries were able to actively undermine the fishing regulations and local chiefs' for their own benefit (Nangoma and Nyirenda 1991; Chagunda and Sibale 1992; Mwandira and Samikwa 1992; Namagonya and Zamadenga 1992; Bell and Donda 1993; Lowore and Wilson 2000; Hara 2001; Wilson 2006). Among the most blatant power brokers in fisheries were the FD and the President themselves. As described by Watson (1987) and Ferguson and Derman (1991, 2000) the operational costs for the FD's scientific trawling activities were dependent on income raised by the FD in the sale of collected fish, an arrangement which placed the government in direct competition with fisherfolk, the stakeholders on

[10] The MCP was the only legal political party in existence during the 30 years of President H. K. Banda's dictatorship. As explained by Ihonvbere (1997), until the end of the cold war, most western governments refrained from criticizing the "corrupt and highly repressive [Banda government's] bribery, intimidation, election malpractices, and suffocation of civil society, as Banda legitimized the South African Apartheid government as well as providing support to the brutal RENAMO [a counter-revolutionary army reknowned for its attrocities] forces in Mozambique."

whose behalf they were supposed to work.[11] Similarly, following the nationalization of the Greek-owned commercial fishing fleet, the Malawi Development Corporation (MALDECO), a subsidiary of the President's Press Holding Company, became the single-largest fishing interest on Lake Malawi (Watson 1987; Ferguson and Derman 1991; Ferguson and Derman 2000).

Beyond the national political scene, however, there were grave oversights on the part of the British ODA, which had contributed much to the operational funding and guidance of the FD. The ODA's own assessment concluded that, while

"[ODA funding] has had a durable impact on the Department's capacity to manage the country's fisheries resources, it has also encouraged the Department (along with other donors) to undertake expenditure which was neither financially nor economically justifiable" (Jones et al. 1990).

In many cases this meant that while positions were funded, the operational costs were not, leaving many staff members both idle and frustrated. Additionally, rather than helping to transfer skills and training to Malawians, the ODA support during the 1960–1970s had primarily attempted to continue providing a functioning FD to the newly independent nation, meaning that most of the senior positions continued to be held by expatriates (Mzumara 1978; Jones et al. 1990).

In addition, the operational challenges that were not addressed by the ODA's biocentric research and technocratic management approaches (which reflected a common world-wide approach to fisheries science) had left the FD staff well-versed in ecology but entirely untrained in the social or administrative sciences (Jones et al. 1990). As of 1990, the ODA report concluded that "hardly anything appears to be known about socio-economic factors—e.g., incomes earned, patterns of ownership, alternative income sources, and constraints on activity" in the African fishery (Jones et al. 1990). The value of social data remained under-appreciated by the foreign fisheries scientist community, however, and as the *chambo* stocks in Lake Malombe and the Southern Lake Malawi showed increasing signs of over-exploitation in the late 1980s, the donor agency-funded '*Chambo* Fishery Management Project' maintained a largely bio-centric, *chambo*-focused research agenda (FAO 1993; Ferguson and Derman 2000). Little research was done to investigate the fishing communities' perspectives regarding the fishery, and the government failed to recognize that the wealthy *chambo* seine fishers and mechanized trawler fishers, who they considered their primary stakeholders, were a source of local conflict and inequity (Ferguson and Derman 2000).[12]

In a poignant intersection between declining governmental legitimacy and over-exploited fish stocks, 1993 saw the collapse of both the *chambo* stocks of Lake Malombe (Figure 6) and the national single-party government. In fact, during that year, the annual harvest of chambo declined from 4 to 7,000 tons to barely 200 tons per annum.

Democracy and Participatory Management Clash with Lingering Autocratic Tendencies to Produce a Mixed Bag of Fisheries Co-management Efforts (1993–2005)

The first multi-party elections were held in 1994, a precursor to a bewildering wave

[11] Despite the concerns raised by Watson regarding this arrangement, the Icelandic Aid Agency (ICEIDA) donated another research vessel to the FD in 1993 (the *Ndunduma*), which is the second most powerful fishing vessel on the lake, and which continues to pay for operational costs from fish sales (Allison et al. 2002).

[12] The problems related to the *chambo* fishery, and the donor agencies and Fisheries Departments' lack of appreciation for the kambuzi fishery are discussed in the Lake Malombe case study below.

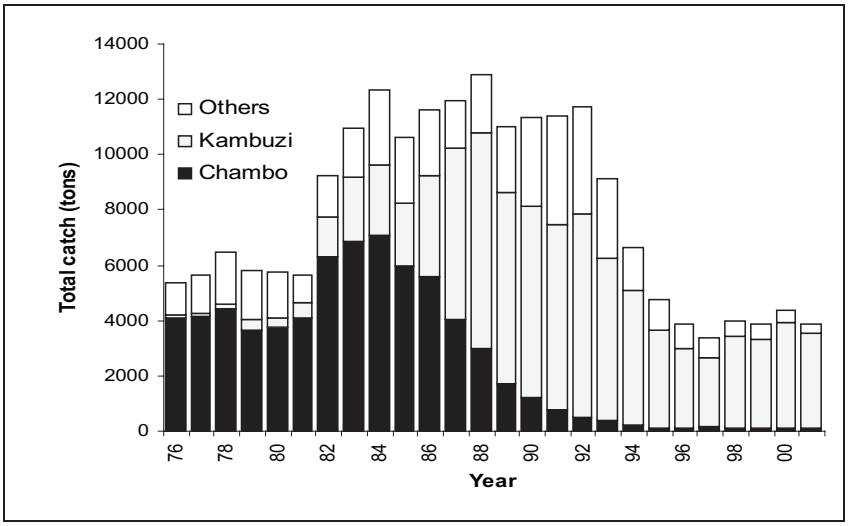


Figure 6. Decline of the Lake Malombe *Chambo* Fishery (Tweddle, Alimoso et al. 1994).

of new development and governance paradigms that were to sweep across the nation. The donor agencies pushed their agendas of economic and political liberalization, and the "new" political leadership seemed to embrace these concepts and all the "paraphernalia of democracy" associated with this change.[13] With the departure of the dictator, a new conception of fisheries management became a possibility. However, while some elements of the government apparatus and modus operandi changed, the autocratic tendencies embedded in its institutions and leaders for the previous 33 years would not disappear overnight. (Englund 2002) Indeed most of the "new" senior leadership and opposition party leadership had worked in senior positions under President Banda, and subsequently reinvented their histories to sell their democratic values to the donor community (Ihonvbere 1997; Mapanje 2002).

Simultaneously, the withdrawal of much foreign assistance to the government's budget was forcing the leadership to accept the inevitability of over-fished stocks unless they adopted a radical new participatory fisheries management regime that was achieving scientific acclaim (Mkanda 1991; Bell and Donda 1993; Martin 1993). However, as with the national leadership, while the FD adopted the language and paraphernalia of participatory fisheries management, its operations would in fact continue to be highly-hierarchical and political, which would undermine extension workers' initiatives to facilitate participatory fisheries management (Donda 2000; Hara 2001). Interestingly, while some within the international development community would promote participatory fisheries management, these agencies' and NGOs' short-term project orientation and bio-centric research perspective would actually undermine the creation of an effective long-term national fisheries management policy. These influences are best understood by an analysis of the present-day patchwork of participatory fisheries regimes in Malawi.

Following the crash of the *chambo* fishery in Lake Malombe in 1993, the FD and donor agencies alike recognized the inability of the government to control fishing effort through the centralized fisheries man-

[13] A phrase coined by Englund (2002) which includes: "multipartyism, regular Parliamentary and Presidential elections, new constitutions, freedom of expression, a non-governmental sector."

agement regime (FAO 1993). However the management recommendations provided by the *Chambo* Fisheries Management Project which depended on either limiting access to the fishery, banning certain fishing gears altogether, or enforcing fishing gear mesh sizes were regarded by senior Department of Fisheries staff as "politically unpalatable and practically unenforceable" (Hara 2001). As a result of the government's recognition that it lacked the local legitimacy and capacity to enforce such regulations, an ad-hoc committee was formed to design an alternative management strategy, resulting in the Artisanal Fisheries Management Plan of 1992 (Gaiger 1994). This plan introduced the idea of a "participatory approach to management," and was guided by consultant, Richard Bell, and FD socio-economist, Steve Donda.

Richard Bell was one of the primary advocates for participatory natural resources management in Malawi. He was a biologist who had helped to establish the unorthodox Luangwa Integrated Resource Development Project (LIRDP) in Zambia which integrated rural development with conservation in and around a park that had previously been a conflict-ridden poaching haven (Adams and McShane 1992; Morris 1996). In his book chapter, entitled "Conservation with a Human Face," Bell (1987) argued that the seemingly inherent conflict between conservation and rural Africans' interests, which legitimized the militarization of natural resources management enforcement, could actually be managed if the rural peoples' interests were addressed directly. Whereas the scientific community and foreign conservationists hailed the genetic and esthetic values of unique fish and wildlife species, the local communities' livelihoods depended to a certain degree on these resources, but these needs were generally not addressed by natural resource management agencies whose goals were based on protectionist mission statements defined by conservation science.

With high relevance for a Malawi FD that lacked legitimacy in the eyes of its stakeholders or the resources to enforce its regulations, Bell argued that, "however well intentioned, plans imposed from above are liable to generate social conflicts or to contain technical errors, [meaning that for best results] input from all parties involved [read, 'fishing communities'] must be incorporated into land-use plans." (Bell 1987)

In addition to the LIRDP program in Zambia, the Zimbabwean CAMPFIRE program provided further encouragement as they were controlling poaching of wildlife by giving communities actual ownership (and the monetary returns) over their wildlife resources (Association 1998).[14] The growing popularity of (and financial support for) participatory resource management approaches among development professionals (Bland 1992) had led the FD to commission a study by Bell and Donda evaluating the costs and benefits associated with different management approaches for Lake Malombe: centralized management, community-based management, and co-management (Bell and Donda 1993). As the government lacked the resources to enforce the first option, and as the communities lacked the capacity to take over management of the fishery in its entirety, the FD elected to attempt a fisheries co-management regime in collaboration with fishing community stakeholder committees. Additionally, in order to establish a legal basis for participatory fisheries management, the 1974 Fisheries Act was amended to become the Fisheries Conservation and Management Act of 1997 based on a consultancy by Tracy Dobson (Dobson 1996).

[14] "Under Zimbabwe's Communal Areas Management Programme for Indigenous Resources (CAMPFIRE), [first established in 1989] people living in communal lands are given legal rights and technical support to sustainably manage their natural resources. Once they have a management plan approved, communities are able to harvest wildlife and use its profits for rural development, while also contributing to environmental conservation."

Lake Malombe Participatory Fisheries Management Program (PFMP)

With the collaboration of the GTZ[15], and the assistance of the UNDP/FAO, World Bank, and ODA, the Malawi-German Fisheries and Aquaculture Project (MAGFAD) commenced with a pilot co-management program around Lake Malombe and the Upper Shire River, where, it was hoped community collaboration would bring about a recovery of the depleted *chambo* stocks (Bland 1992; Wilson 1993; Dobson 1998; Scholz et al. 1998; Ferguson and Derman 2000). If this pilot program proved successful, the FD intended to expand co-management to the South East Arm of Lake Malawi, and then on to the rest of Lake Malawi (Bell and Donda 1993; Dawson 1997; Hara 2001).

What should be noted is that this program started before any successful fisheries co-management regimes had been documented in Africa, and therefore, the FD and its donor agency collaborators were attempting to design a management regime with only a rough theoretical framework to go by. At its core was the establishment of fishery stakeholder groups, called Beach Village Committees (BVCs), in each community around the lake, which would be empowered to regulate their local fishery. A number of studies have assessed the successes and failures of the co-management regime around Lake Malombe and the BVCs that were established (Dawson 1997; De Gabriel 1998; Donda 2000; Hara et al. 2002), and unless otherwise indicated, we will be making use of these primary sources to summarize some of the key issues that have proved most vexing to the Lake Malombe co-management program:

Disjunctions between government and stakeholders' goals.—While the government and donors were preoccupied with recovery of the *chambo* stocks, fishing communities preferred allowing emergence of a more equitable kambuzi fishery, (Bell and Donda 1993; Quan 1993; Mdaihli and Donda 1992).[16]

*Unrepresentative/undemocrat*ic BVCs.—Some of BVC elections were democratic, however, in many cases the monetary benefits of membership led the chiefs and Extension workers to select BVC members.

Conflicts between chiefs and BVCs[17].—In some cases, the BVCs were dominated by chiefs, and in other cases, the BVCs represented a threat to the authority and incomes of the chiefs, and were therefore resented and undermined by chiefs.

*Poor sense of Stewardship/Ownersh*ip.—BVCs regarded their roles as replacing that of the government after the ineffectiveness of the FD had resulted in the collapse of the *chambo* stocks. Therefore, most participation in BVCs was motivated by the financial benefits.[18] The high level of involvement of (European) donor agency personnel may also have diminished the sense of local ownership over the resource.

[15] GTZ-Gesellschaft für Technische Zusammenarbeit (German Foreign Technical Assistance Agency)

[16] As *chambo* declined, the "kambuzi" (a poorly defined group of species, dominated by *Lethrinops* spp.) fishery grew to take its place. Mdaihli and Donda (1992) showed that while earnings in the kambuzi fishery were smaller (sold in 1993 at MK 0.60/kg) than those for *chambo* (sold in 1993 at MK 2.40/kg), the division of profits between gear owners and crew were more egalitarian and this was also a cheaper fishing gear to invest in.

[17] As the traditional arbiters in village conflicts, chiefs were able to fine community members and keep the money or goods (paid in the form of cash or goods) collected for personal use. As the BVCs were now assigned the roles of fining offenders, the chiefs lost out financially and in prestige.

[18] In particular, payment for any activity that they carried out on the BVC behalf, participation in training workshops where they would be paid daily allowances, and access to loans (see below).

Poor Effectiveness as Conduits of Extension Messages.—It was generally found that the BVCs did little to share the extension information that they received with their communities.

Lack of Trust in the FD.—The fishers had accepted the new fishing gear restrictions on the assumption that they would receive replacement fishing gears or loans, but when the donor agencies determined that they would be unwilling to sponsor either the gear replacement or loans, trust between the FD and fishers was lost (Pohlvogt and Walter 1995; Scholz et al. 1998).

Poor FD commitment to participatory management.—Although the FD and donor agencies spoke in the language of participation, the fishing communities generally felt that the FD rarely responded to their concerns. Worse yet, some BVCs were actively undermined by FD staff when they attempted to enforce regulations (Dobson and Lynch 2003). This lack of democratic values in the field staff was modeled on the hierarchical bureaucracy in which they worked, and the FD's short-term program goal orientation that defined the field staffs' interactions with the BVCs.

Since its inception in 1994, the Lake Malombe PFMP has struggled to achieve local legitimacy and ownership, and has not resulted in a recovery of the *chambo* stocks (Donda 2000; Hara et al. 2002). The BVCs formed a Fisheries Association; however, most of the donor agency expertise and funding for loans and micro-loans programs ended in the late 1990s[19], bringing almost all of these livelihood diversification activities to an end (Hara et al. 1999). Nevertheless, despite the lack of strong governance structures in this lake, Lake Malombe's fisheries have remained relatively stable, ranging between 3000 and 4000 tons caught per year (mostly *kambuzi*) during the 1994–2001 period (Banda et al. 2002). Consequently, unless the fishers genuinely want to support the recovery of the *chambo* fishery (as outlined in Banda et al. 2002), the government might have to accept this state of affairs and focus its extension and enforcement efforts on optimizing the communities' management and harvest of the kambuzi fish stocks.

[19] The last major support, GTZ funding for the MAGFAD and NARMAP programs ended in 2002.

Mbenji Island Traditional Fisheries Management (Scholz et al. 1998; Scholz and Chimatiro 2004; Wilson, personal communication)

In contrast with the traditional river fisheries that date at least to the early 1900s, the fishery of Mbenji Island is a somewhat unique case as it only became a chieftain-regulated fishery in the 1950s. Mbenji Island lies off-shore of Nema Village in Salima District, and plays host to a thriving *utaka* fishery (*Copadichromys* spp.). Presumably due to growth in the numbers of imported beach seines during the 1950s, chief Msosa established a fisheries regime to ensure the sustainability of the fishery and to benefit personally from this growth. He set a closed season during the rainy months, and banned the use of harmful fishing methods (such as beach seines lined with mosquito nets or light attraction for night-time *chilimira*[20] fishing). Additionally the growing population on a rocky island with few pit latrines was vulnerable to cholera outbreaks during the rainy season, and so both in order to en-

[20] The chilimira is an open water seine, pulled by two vessels (usually one plank boat and one dugout canoe), with an additional canoe used by the signal man who locates the fish shoals and when done at night uses lights to attract fish into the net. This fishing technique is thought to have been introduced to the northern Likoma and Chizimulo islands by Arab traders in the 1870s, was brought to today's Nkhata Bay District around the turn of the century, and Tonga fishers introduced these to the rest of the lake in the 1950–1970s (Jackson et al. 1963; McCracken 1987).

force the closed season and to protect peoples' health no one was allowed to live on the island during this period. Social harmony was enforced by banning alcohol, marijuana, gambling and women [sic] on the island. Finally, by ejecting fishers during part of the year, the chief could charge a fee from them every time they returned.

Traditional beliefs maintain that contravention of the regulations will anger the ancestral spirits who determine the bounty of fish around the island, and at the opening ceremony for the fishery, Chief Msosa makes a sacrifice to these spirits in order to provide for good fish harvests. The opening day of fishing season is one of great spectacle, with the sacrificial ceremony, dancing, and speeches. Enforcement of the regulations is carried out by Chief Msosa and his council of elders and fishermen. This fishery and regime has endured through several chieftaincy successions, and the FD has made much propaganda use of it to encourage other traditional leaders to take a greater stewardship role over their local fisheries. However the future success of this program has been called into question due to the corrupting influence of the increased financial incentives that NGOs and the FD are providing in order to share the credit for this unique program.[21]

Lake Chiuta Fisheries Association: Fishery Stakeholders adopt CBNRM

Whereas, Lake Malombe was a government/donor agency-driven co-management program, the Lake Chiuta Fisheries Association was entirely initiated by the fishing communities themselves, and represents a scenario in which the communities have a high sense of ownership and stewardship over the resource. Lake Chiuta was also the first proof that Malawian societal norms could be compatible with a community-based resources management ethic that did not depend on the traditional roles of the chiefs.[22]

Lake Chiuta is located in a remote part of Southern Malawi, and until the late 1980s the only institution regulating fishing in this lake was based on a traditional belief that spirits inhabiting an island in the lake, Phiri la Mtsatsi, would abduct any fisherman found fishing around the island, in effect, creating a fish sanctuary (Donda 2000). The conditions that had protected this fishery from being commercialized changed in the late 1980s, when a road was constructed to the lake, linking this fishery to more distant markets (Wilson 2004). The first new entrants to the fishery, beach seine fishers from Lake Chilwa, were tolerated by local fishers, however, a large influx of nkhacha seine fishers later on caused the 1990–91 collapse of the *chambo*[23] fishery (upon which the local communities depended) (Dawson 1997). The nkhacha presented a number of problems to the local gillnet *chambo* fishers: whereas gillnets had caught *chambo* selectively, the nkhacha is a fine-meshed open-water seine that catches immature fish of all species, and its dragging action on the lake bottom caused the destruction of *chambo* breeding grounds and the macrophytes that were the basis for the lake's productivity, and made the lake water too turbid for domestic uses. Additionally, nkhacha fishers sold their catches at cheaper prices than local fishermen, and undercut local incomes (Dawson 1997; Donda 2000).

[21] Interview conducted on 2002–06-10.

[22] Indeed as this case study illustrates, chiefs have frequently chosen to accept bribes rather than act for the greater welfare of their communities. Therefore, despite the success of the Mbenji Island fishing regime, whole-sale reliance on chiefs to establish sustainable and equitable fishing institutions will unlikely produce the desired effect.

[23] Note, in Lake Chiuta, the "*chambo*" fishery differs from that in Lakes Malawi and Malombe, and refers specifically to *O. shiranus* (known locally as *makumba*) and *Tilapia rendalii* (known locally as *chilunguni*).

These threats to local livelihoods, living standards, food sources and ecology came to a head with the collapse of the *chambo* fishery, and local fishers called a fishers' meeting demanding that the nkhacha fishers increase the mesh sizes of their nets or face eviction. However, when they asked their local chiefs to evict the nkhacha fishers in September 1992, they found their concerns ignored as the nkhacha fishers had established a fund with which they bribed the local chiefs and MCP party leaders (Wilson 2004).[24] When asked to intervene on their behalf, the local FD representative could not as he lacked any legal basis for evicting the outsiders, however, through meetings with the FD staff and exposure to the FD extension radio program, "Usodzi Wa Lero,"[25] local fishers learned of the newly established Lake Malombe PFMP program. The fishers then decided to establish BVCs around their own lake, and called for a general meeting on May 17th 1995 with all the local chiefs, FD officers, members of Parliament and Police chiefs. At this meeting it was agreed that the nkhacha and beach seines would be banned from the lake and minimum mesh sizes were established for gillnets (Dawson 1997; Donda 2000). 200–300 of the nkhacha fishers refused to accept these regulations, and the BVCs forced these fishers to leave by burning down the nkhacha owners' straw houses on May 19–20, 1995 (Dawson 1997; Donda 2000; Wilson 2004).

In 1996, the FD integrated the Chiuta fishers into the government's PFMP scheme. However, BVCs remained the only active enforcers of fishing regulations while the FD served in a passive advisory role to the BVCs (Donda 2000). Significantly, the seven village chiefs who had shown a lack of ethics and leadership in accepting bribes from the nkhacha fishers were omitted from the regime altogether, while the two who had supported the local fishers (and who were fishermen themselves) were included as nonvoting members (Njaya et al. 1999; Donda 2000). Donda (2000) also found that, in contrast with the Lake Malombe BVC members, the Lake Chiuta BVC members were primarily motivated to join the BVCs in order to protect their fisheries and for the social distinction that this role provides them within the community.[26]

By 1998, Lake Chiuta's *chambo* stocks had recovered to their former levels, and the Fisheries Association has continued to refine its regulations (Wilson 2004). Additionally, these BVCs were effective collaborators in the FD's annual fisheries frame survey (Njaya 2002). As the lake lies partly within Mozambique, an ongoing challenge to the fisheries regime comes from nkhacha fishers, many of whom are Malaawians based on the Mozambican shore (Njaya et al. 1999; Donda 2000; Mozambique 2005).[27] Following the failure of informal discussions between the stakeholders on either side of the border to establish a unified position on nkhacha fishing, in 2005 the Lake Chiuta Fisheries Association confiscated a number of nkhacha seines from fishermen who had crossed over from the Mozambican shore.[28] Additionally, tensions between chiefs and fishers flared up again in 2005, when chiefs were physically accosted by the BVCs for accepting further bribes from Lake Chilwa beach seine own-

[24] Wilson (2004) noted that the fishers also reported this situation to the responsible District Commissioner, Traditional Authority, and District Fisheries Officer, but no action was taken.

[25] *Usodzi Wa Lero* translates to "Modern Fishing," and was a weekly 15-minute radio program targeted at disseminating fisheries-related information to fishing communities. This was initiated by the MAGFAD project and sponsored by the GTZ (Mueller and Saukani 2002).

[26] As a matter of policy, no sitting allowances have ever been given to the BVCs or Association at Lake Chiuta (John Wilson, personal communication).

[27] Note, however, that these may not necessarily be Mozambicans. Wilson (2004) noted that after being chased away, several Malawian nkhacha fishers settled on the Mozambican shore.

ers who attempted, again, to gain access to this fishery.[29] The unresolved rifts between TAs/chiefs and the BVCs, and the BVCs' lack of legal standing were pinpointed as the primary sources of potential instability in the Lake Chiuta fishery co-management regime (Hara et al. 2002). Though the BVCs have taken all necessary legal steps (granted under the "Fishing Rules" passed by Parliament and signed by the Minister on February18th, 2000) to establish a legal local fisheries regime, at this writing they still await the endorsement of the FD director.

Lake Chilwa and Mpoto Lagoon Fisheries Association

Lake Chilwa is a large shallow lake (roughly 2,300 km^2 and 2–3 m deep) in Southern Malawi whose Eastern shoreline forms part of the national border with Mozambique. Given its size, it is also one of the most productive fisheries in Africa, producing up to 25,000 tons of fish in a good year (Nyasulu et al. 2001; Wilson 2004). Due to its shallowness, however, this lake has dried out almost completely seven times during the last century (Lancaster 1979; Scholz et al. 1998).[30] During these periods of drought, fish stocks have found refuge in isolated pools in the rivers that flow into the lake, making them particularly vulnerable to capture by fishers. (Wilson 2004) Because of concerns over the sustainability of fish stocks during the most recent recession of the lake, in 1995, the FD and Traditional Authorities around Lake Chilwa decided to implement a co-management regime to limit the exploitation of fish stocks in these refugia (Scholz 1998; Njaya 2001; Wilson 2004).

That year, a number of "River Village Committees" were established along all major in-flowing rivers to regulate fishing in riverbed pools, in particular to stop the use of small-meshed nets and plant-derived poisons (Scholz et al. 1998; Wilson 2004). Following the re-flooding of the lake, the River Village Committees program was expanded to the entire Lake Chilwa and the closely associated Mpoto Lagoon shorelines, leading to the creation of over 50 BVCs, established to regulate an array of other fishing practices (Njaya 2001; Nyirenda 2001; Scholz and Chimatiro 2004; Wilson 2004). Despite these actions, the Lake Chilwa and Mpoto Lagoon BVCs and Fisheries Association have suffered from some of the same sources of illegitimacy as the co-management regime on Lake Malombe. In this case, the BVCs were largely made up of chiefs and their appointees, most of who were not actual fisherfolk, did not live near the lakeshore, and had little direct knowledge of the fishery (Wilson 2004; Wilson 2006). Excluding most primary stakeholders, the BVC regulations were established by the FD and chiefs during the course of three meetings sponsored by the GTZ-MAGFAD program (Wilson 2004; Wilson 2006). The primary sources of conflict have been the regulations that sought to establish controls over the large numbers of fishers who operate from floating reed islands outside the jurisdiction of local chiefs, the 6-month closed season on beach seine fishing, and the use of poisons in riverbed pools as this is a traditional fishing method used by women (Scholz et al. 1998; Wilson 2006).

Following the decline of MAGFAD and DANIDA[31] support for FD extension programs in the late 1990s, the FD gained the support

[28] 2006–08-16–personal communication–John Wilson; Again, not all poaching is conducted by Mozambique-based fishers. Radio Mozambique (2005) aired a report in which illegal fishing and felling of trees by Malawians was cited as a particular concern along the Mozambican shores of Lakes Chiuta, Chilwa and Amaramba.

[29] 2006–08-16–personal communication–John Wilson.

[30] Significant recessions or complete droughts were recorded in 1900, 1913–1916, 1920–1922, 1934, 1954, 1960–1961, 1966–1968, 1973 and 1995.

of the USAID-funded COMPASS program. COMPASS I's approach involved providing boats and engines to BVCs. However, a new iteration of the organization, COMPASS II, found that those activities stimulated conflict and chose instead to support the Lake Chilwa and Mpoto Lagoon Fisheries Association by sponsoring a series of workshops aimed at giving the existing regulations official governmental sanction (COMPASS 2002; COMPASS 2003; COMPASS 2004). Despite government and NGO-attempts to give this Fisheries Association a legal identity, however, its lack of popular mandate and transparency, as well as its exclusion of women remained problematic. Furthermore, Chilima et al. (2001) noted that membership in the variety of development committees in this area is dominated by a select group of community members who tend to be motivated by individual economic interests.

As the fisherfolk see the financial benefits (in terms of fines levied and invitations to attend workshops) accrue to BVC and Fisheries Association members (Wilson 2006), the motivations of the chiefs and FD for the establishment of such an extensive system of BVCs may be seen with some skepticism. Additionally, the value of the establishment of such an extensive and socially disruptive formal management regime must be questioned altogether due to biologists' long-standing recognition of this lake's fish stock's ability to rebound from natural refugia in swamps, pools, and upstream tributaries (Furse et al. 1979; Allison and Mvula 2002; July-Larsen et al. 2003; Wilson 2004). While conclusions regarding these BVCs' effectiveness in management must be suspended, the BVCs are reported to have been effective collaborators in generating the results for the FD's annual fisheries frame survey (Njaya 2002).

[31] DANIDA—the Danish Government's foreign aid agency.

Chia Lagoon Fisheries Association: Chieftains failed but fishers are taking charge

Chia Lagoon (in Southern Nkhotakota District) is separated from Lake Malawi by a strip of land 1–2 km wide, and is connected to the lake by a single river outlet. This picturesque lagoon and its bountiful fishery were first described by David Livingstone, and is one of the most productive fisheries in the district (Livingstone and Livingstone 1865). Although Hara (2001) has documented the existence of some informal regulations that limited fishing in the lagoon, these do not seem to have prevented the over exploitation of local fish stocks. In 1996, long-term declines in *chambo* stocks led local chiefs to approach the FD for help in establishing new regulations to protect the fish stocks.[32] Upon the FD's suggestion, all 23 chiefs and 2 Traditional Authorities (TAs) from Chia Lagoon visited Mbenji Island to learn from Chief Msosa's fishing regime.[33] Having decided to establish a similar closed season in the lagoon oriented around the *chambo* fishery, in 1997 the chiefs established BVCs in all communities, to "act as the eyes of chiefs." Following a public meeting with all stakeholders, apparently everyone accepted the establishment of a closed season in the lagoon between December1–March 31. The first few years of closed season enforcement brought about a recovery of the *chambo* stocks, but subsequently, community support for the closed season declined.[34]

In 1999, the FD attempted to revitalize the regime by bringing all the BVCs together under a single "Beach Management Group." Seymour (2005) attributes the lack of BVC success to the self-seeking behavior of the chiefs: "fines accrued to the [chiefs] rather than the BVC, rule-breaking committed or condoned by some [chiefs] themselves"

[32] Russell—Interview with chief—2002–07-15.
[33] Russell—Interview with chief—2002–07-15.
[34] Russell—Interview with chief—2002–07-15.

(Seymour 2005). Additionally, high levels of community dependence on the FD to enforce fishing regulations in the lagoon, and the FD lack of resources to do so have been cited as problems by both the communities and FD (Hara 2001; Seymour 2005).[35] These conditions have enabled a growing nkhacha fishery to displace the kambuzi seine fishery in this lagoon, resulting in similar declines to the *chambo* fishery as when nkhacha fishers arrived at Lakes Chiuta and Malombe (Seymour 2005).

In 2005, the renewed state of ecological crisis prompted another round of discussion mediated by the FD and NGOs,[36] resulting in the chiefs' and fishery stakeholders' creation of the Chia Fisheries Association. This Association intends to play a larger role in overseeing BVC activities, and plans to ban a number of fishing gears, including nkhacha nets, however these regulations will be difficult to enforce as there are several communities that are entirely dependent on these fishing gears (Seymour 2005). The effectiveness of the new Chia Lagoon Fisheries Association remains to be seen.

The "Village Trusts" of Lake Malawi National Park

In addition to the FD's efforts, the Department of National Parks and Wildlife (DNPW) has embarked on a participatory fisheries management regime in Lake Malawi National Park, located at the tip of the Nankhumba Peninsula (which separates the South East from the South West arm of Lake Malawi). This peninsula was the site of the first (failed) Livingstonia Mission that was established in 1875, and which led to rapid population growth in the area (Grenfell 1993). Although the primary fishery at Chembe Village (the largest and oldest of the communities in the park) was originally a beach seine fishery for utaka, this gradually shifted to usipa with the arrival of northern *chilimira* fishers who introduced industrially-made fishing nets. The unique tourism potential of the area was first exploited in 1948 with the construction of the Cape Maclear Hotel in 1945, and in 1983 a total of 1,308 overnight visitors stayed in the government-run hotel (Grenfell 1993).

In 1980, this area was established as the first freshwater, underwater park in the world, and was recognized as a World Heritage Site by UNESCO in 1984 (Derman and Ferguson 1995).[37] The primary reason for its establishment was to provide protection within a 100-m distance of the shoreline and its 13 islands where a unique diversity of colorful cichlid fish species live among a patchwork of rocky and sandy lakeshore habitats. This 87 km^2 area is quite small in comparison with the lake (6400 km^2), yet it contains fully half of the 500–1000 endemic fish species estimated to live in Lake Malawi (Cubberly 1991). Additionally, in order to protect these habitats from the dangers of land-based erosion and pollution, the entire watershed adjacent to the shoreline was incorporated into a contiguous park. The four preexisting fishing communities[38]: Chimpamba/Msaka, Mvunguti, Zambo, and Chembe (which contains at least half of the human population in the park), were given permission to remain as enclave villages within the park, but their fishing liveli-

[35] Russell—Interview with chief—2002–07-15, Russell—Interview with FD staff- 2002–07-15.

[36] Wildlife and Environmental Society of Malawi—Dwangwa Branch; Chia Lagoon Watershed Management Project (CLWMP)

[37] A number of the components of the National Park had previously been gazetted as Forest Reserves. These were consolidated into a National Park in 1980 under the National Parks Act.

[38] Although a fifth community, Chidzale, was not included as an official enclave village in the original creation of the National Park, no enforcement measures were ever taken to remove this community, and later management plans include this village as an official enclave village. This is the smallest village, and was settled by Northerners in the 1970s (Grenfell 1993).

hoods were severely curtailed by the park's creation (Grenfell 1993).[39]

While conservation was the stated goal of the park creation, towards the end of its regime, the Banda government saw the possibilities of untold riches if this park could be developed for high-class tourism. The Malawi Development Corporation, largely owned by President Banda's Press Corporation, collaborated with a South African hotel chain to develop a 152-room luxury hotel complex in the Chembe valley (Ferguson et al. 1993; Grenfell 1993; Derman and Ferguson 1995).[40] Emboldened by the interests that the World Wide Fund for Nature (WWF) and the World Bank Global Environmental Facility (GEF) had in conserving this ecosystem, the DNPW developed a rival plan for small-scale tourism development in the park (Cubberly 1991; Derman and Ferguson 1995). Additionally, the DNPW, FD and Department of Water raised a number of concerns regarding the ecological threats that such a hotel would pose to the delicate fish habitats, although it should be noted that no protests were made on behalf of the human communities that would have had to relocate to make room for the golf course (Derman and Ferguson 1995). In the end, the DNPW was able to use the WWF publicity for the park's biodiversity to delay the construction of the large hotel until 1993, when Banda's government collapsed (Cubberly 1991; Derman and Ferguson 1995).

Despite calls during the 1990s from within the DNPW for a more participatory management approach, this agency's approach remained one of "fences and fines," reflecting the dictatorship's own approach to governance (Mkanda 1991). This top-down policy in Lake Malawi NP was supported by the WWF whose approach to achieving conservation goals was sensitization of fishers rather than empowerment of them (Cubberly 1991). The 1993 Lake Malawi National Park Management plan claimed that fishers were supportive of the nonfishing zones, however, the same document also recorded 45 poaching-related arrests during the previous year and called for greater investment in the study of poaching patterns (Grenfell 1993). In the end, the DNPW's inability to control poaching of the fish and woodland resources led the government to adopt a new participatory form of fisheries management for Lake Malawi NP in 2000 (Abbot and Mace 1999; Bell and Donda 2000).

Faced with the example and lessons learned from the Fisheries Department's BVC program in Lake Malombe, Richard Bell and Steve Donda produced a strategic management plan for Lake Malawi NP that would enable the enclave communities to gain economic benefits from the tourism associated with the conservation of the local resources (Bell and Donda 2000). Rather than following the co-management strategy attempted in Lake Malombe, however, Bell and Donda patterned their management plan for Lake Malawi National Park on the Zimbabwean CAMPFIRE and Zambian ADMADE community-based natural resource management regimes. The management strategy was described as follows:

"The primary economic opportunity is nonconsumptive tourism, while consumptive use of *mbuna* fish and forest products should be reduced to sustainable and esthetically compatible levels and ultimately eliminated. This can be achieved through the develop-

[39] Although a fifth community, Chidzale, was not included as an official enclave village in the original creation of the National Park, no enforcement measures were ever taken to remove this community, and later management plans include this village as an official enclave village. This is the smallest village, and was settled by Northerners in the 1970s (Grenfell 1993).

[40] Beach seines were forbidden entirely, and the use of chilimira and gillnets was not permitted in the coastal zone, i.e., some of the most productive areas.

ment, in partnership with adjacent communities, of low volume/high cost/high quality tourism, with a focus on adventure style activities rather than accommodation. Concessions for tourist facilities and activities within the National Park will be leased to the trusts of adjacent villages." (Bell and Donda 2000)

In its first years, this program had little success. Lacking a policy regarding the roles of chiefs, the first Village Trust at Chembe village was quickly dominated by the chief (GVH Chembe) who appointed his relatives as Trust members in a blatant attempt to gain all benefits from the program.[41] Unsurprisingly, due to the lack of community representation, the Trust's attempts to limit deforestation of the hillsides met with widespread community resistance. In addition to resenting the chief's control over any benefits that arose from the Village Trust program, the wider community feared that the whole scheme might be a veiled attempt (with the collaboration of the chief) at further alienation of the lakeshore for tourism purposes from which the community received little benefit.[42] Due to the rising animosity, TA Nankhumba called for new Village Trust elections and gave chief Chembe the position of ex-officio patron. In addition to the problems at Chembe, other chiefs refused to protect the National Park forest as they feared that all access to the nontimber products would be denied to them. The TA also intervened in these cases, explaining the nature and value of the Village Trust program to them, and threatened to have the village chiefs removed from their positions if they did not accept his rulings.[43]

In recent years, the "Village Trusts" have received mixed reviews. Chembe Village is the largest enclave village situated in the most accessible, developed and scenic portion of the park, and has received the lion share of external income generating assistance from NGOs and donor agencies. Additionally, this trust has entered into a revenue-sharing arrangement with an up-scale adventure kayaking operator, giving this operator exclusive rights of access to two islands and the surrounding waters.[44] In doing so, and empowered to claim ownership over these islands by the Trustees Incorporation Act of 1968, Chembe Village Trust has effectively denied other communities' fishers access to the fishing grounds. In combination with the skewed distribution of benefits among Village Trusts in favor of Chembe village, the exclusion of the Msaka fishers from Chembe Trust's islands, in particular, has been a source of conflicts and resentment between communities.[45]

Aside from those activities that serve their interests, Chembe Village Trust has not been judged to be particularly active in either addressing the deforestation of the watershed or enforcing restrictions on its own fishing activities (COMPASS 2002).[46] Nevertheless, the DNPW is reported to have established three Village Trusts to date, and three further trusts are reported by the government to be in various stages of creation (Nyanyale 2005). Furthermore, this report claims that collaboration with the village trusts has resulted in dramatic declines in illegal fishing and harvesting of woodland resources within the park, although it also acknowledges that population growth in the park will increase pressure on resources. Combating poaching will therefore require more, rather than less,

[41] Personal communication, John Wilson 2002–2005.
[42] Russell—Interview with Traditional Authority—2002–06-17.
[43] Russell—Interview with Traditional Authority—2002–06-17.
[44] see Kayak Africa homepage (www.kayakafrica.net)
[45] Interviews conducted on 2002–06-09; Msaka community fishers were at a disadvantage in the conflict because many of them were Tonga fishers who were not regarded as true residents of Msaka. Additionally, Chief Chimpamba of Msaka Village was subordinate to Chief Chembe, who is a Group Village Headman over Chief Chimpamba.
[46] Personal communication, John Wilson 2002–2005.

funding of enforcement efforts, despite the collaboration of the village trusts (Rantala 2004).

The government's enclosure of the Bua River Fishery creates ongoing conflicts

While the DNPW has experimented with a co-management regime in the Lake Malawi NP, the Bua River fishery associated with the Nkhotakota Wildlife Reserve remains a site of conflict. This Wildlife Reserve was gazetted as a Forest Reserve in 1933 as it was home to some of the largest elephant and ungulate populations in the central region (Hayes 1972; Morris 1996). Oral sources indicate that the Bua River, which passes through the Wildlife Reserve, had previously been subdivided between different chiefs who each constructed fishing weirs along the course of the river.[47] A local chief explains how the creation of the Wildlife Reserve led to the decline of sustainable fishing practices along the river:

"Since then, people started to fish there at night using katupi (poison). This activity also destroyed the fish eggs, and led to decreases on the numbers of fish in the lake. Sometimes, so much poison was used, that it killed fish all the way down to the lake. They do this despite knowing the effect on fish populations because they no longer have their own portions of the river in which they can fish without katupi. In the past, the communities used to divide the river into separate fishing areas and take care of the fish stocks, harvesting them selectively. After they were moved out of the reserve, there was no more conservation of the fish stocks as all the people were forced to fish a smaller stretch of the river."[48]

This fishery has been regarded as particularly important by the FD, DNPW, and donor agencies as it is the only major *mpasa (Opsaridium microlepis*) and*, sanjika (Opsaridium microcephalus*) fishery in which a significant portion of the river is protected from harvest and watershed erosion, and also provides a potentially lucrative tourist sport fishery (Tweddle 1980; Tweddle 1985; Bank 1991; Quan 1993; Tweddle 1993; Tweddle 2000; Tweddle 2001). The main dilemma for the government has been to ensure that sufficient fish are able to pass the gauntlet of fishing weirs near the mouth of the Bua River to successfully spawn in the Wildlife Reserve. However, the local communities that previously fished the Bua River sustainably are now forced to fish in the narrow portion of the Bua between the Wildlife Reserve and the lakeshore. Here they construct an impassable barrage of fishing weirs near the river mouth, and the few fish that are able to pass upstream into the reserve are targeted by poachers using fish poisons.[49] While local chiefs deplore the situation, they blame the strong local resistance to national fishing weir regulations (requiring that a gap be left in the middle of the weir) on the enclosure of the portion of the Nkhotakota Wildlife Reserve, and claim that they could manage fishing activities sustainably if the government gave them access to this area.[50]

Although the option of sharing access to the park's fisheries with communities was discussed within the government in the mid-1990s, the critical status of the fish stocks due to siltation of spawning grounds, and the use of fishing weirs and poisons[51], probably led the government to err on the side

[48] Russell—Interview with chief—2002–07-15.

[49] Russell—Interview with FD staff—2002–07-15, Russell—Interview with chief—2002–07-15.

[50] 1995–05-16—Mpasa Research and Monintoring Programme Report, 13th to 14th May, 1995 from Fisheries Research Advisor (D.Tweddle) to Directors of FD and DNPW; Russell—Interview with chief—2002–07-15.

[51] These conditions are vividly portrayed by Tweddle's annual reports: 1994–07-13—Mpasa Research and Monintoring Programme, 5th to 8th May, 1994; 1995–05-16—Mpasa Research and Monintoring Programme, 13th to 14th May, 1995.

of caution. Consequently, the government continued their regular fishing weir destruction campaigns,[52] supported financially and logistically by the owner of a nearby tourist lodge[53], the Illovo sugar cane company[54] and the Dwangwa Branch of the Wildlife and Environmental Society of Malawi (WESM)[55] (Tweddle 2000). Although these actions were accompanied by "sensitization" activities, the irreconcilable differences between community and government positions, and the polarizing nature of the fishing weir busting actions resulted in severe animosity and retaliatory actions by local communities.[56] In one such retaliation in 1993, fishers are thought to have dumped some form of chemicals into the river that resulted in the deaths of all forms of animal life along many kilometers of river (Tweddle 2001).[57]

During the late 1990s and early 2000s, JICA (the Japanese Aid Agency), DANIDA, and WWF funded a number of projects aimed at addressing the conservation threats to the Bua fishery and its watershed. WESM-Dwangwa Branch was involved in the implementation of a number of these programs, and the most tangible result has been the creation of three "Natural Resource Management" (NRM) Committees near the Bua River mouth, and the establishment of local conservation regulations in 1999 that included restrictions on the use of fishing weirs, gillnets, and poisons.[58] In return for their enforcement of these regulations, a number of small-scale livelihood diversification programs have been started in these communities. Differing from lakeshore BVCs and the Lake Malawi NP Village Trusts, however, the NRM committees at the Bua River Mouth have not gained access to the river fisheries and other natural resources within the game reserve, or any direct economic benefits from tourism in exchange for their participation. Consequently, these NRM committees have little leverage over their communities, and fishing weirs are still being constructed every year.[59]

PFMP in Southern Lake Malawi Meets with Distrust, and the North is Left to Itself (1998–2005)

During the early 1990s, while the government embarked on the Lake Malombe co-management pilot program, it continued its centralized management and extension approach in the management and research of Lake Malawi's fisheries. Similarly, until the late 1990s an appreciation for the need for greater research on the social, economic and political factors that undermined fisheries management in Lake Malombe was entirely ignored in favor of further studies of ecology, fishing effort, and aquatic nutrient flows (Quan 1993; Bland and Donda 1994; Hara 2001). Concerns over the threatened *chambo* stocks and the steadily growing fishing effort in the South East Arm of Lake Malawi finally led the government and GTZ to expand the co-management program to this fishery in 1998 through the GTZ-sponsored NARMAP program (Scholz et al. 1998; Hummel 2000).[60]

[52] 1996–02-16—FD-DNPW Weir dismantling trip memo, 2002–01-02-—D-WESM memo.
[53] Russell—Interview with NGO staff—2002–05-08.
[54] 2002–01-02—FD-Illovo memo; Russell—Interview with FD staff—2002–07-15.
[55] 1995–07-22—WESM Mpasa survey memo; 1997–08-19—WESM-FD memo "Nets and Weirs placed across the mouth of Bua River"; 2002–01-02-FD-WESM memo.
[56] Russell—Interview with FD staff—2002–07-15, Russell—Interview with chief—2002–07-15, Russell—Field notes of river fishery—2002–07-15.
[57] 1994–07-13—Mpasa Research and Monintoring Programme, 5th to 8th May, 1994.
[58] Russell—Interview with FD staff—2002–07-15.
[59] Russell—Field notes of river fishery—2002–07-15; Russell—Interview with NGO staff—2004–05-08, Russell—Interview with gillnet fisher—2005–03-17.
[60] NARMAP—National Aquatic Resource Management Programme, the GTZ-sponsored program modeled on the MAGFAD program in Lake Malombe.

However, the NARMAP program in Lake Malawi faced many of the same challenges as the Lake Malombe PFMP regarding both, the roles and relationships with BVCs, as well as the roles of the FD extension workers.

As had been the case around Lake Malombe, many BVC members were overwhelmingly motivated by the desire to earn sitting allowances in workshops and to gain access to government loans. Therefore, when the FD stopped holding workshops and loans were not forthcoming, interest in participation declined sharply (Hummel 2000). Additionally, FD–fisher collaboration has been hampered by the FD's close relationship with the commercial and semicommercial fishing industries, who the small scale fishers see as competitors for the fish stocks (Ferguson and Derman 2000; Haraldsdóttir 2002).[61] Consequently, when local fishers see the MALDECO trawlers fishing in prohibited times or areas, or when they claim damage to their fishing nets from the trawlers, their complaints are not taken seriously by either MALDECO or the FD (Banda et al. 1999; Haraldsdóttir 2002).

A FD study regarding fishers' perceptions of government collusion with law breakers warrants a closer look at the conditions influencing FD field staffs' job performance (Banda et al. 1999). Extension personnel reports regarding the functionality of BVCs in their areas have been judged to be highly unreliable by both governmental and independent surveys[62] (Banda et al. 1999), a result that has been partly attributed to the perverse incentives created by the government's distribution of resources that is biased towards those field staff who claim larger numbers of functioning BVCs.[63] Additionally, there is widespread fabrication of data by field staff who receive poor supervision, who regularly receive their salaries late, and who, having learned their professions in a culture of autocracy, were poorly trained in how to facilitate the establishment of participatory fisheries management (IDA 1995; Hummel 2000).[64] As a result, participatory fisheries management in southern Lake Malawi has in most cases been unsuccessful.

The poor legitimacy of the FD in Southern Lake Malawi was punctuated in 2000 by a conflict in which the government was forced to call in riot police, a move reminiscent of the repressive Banda regime. In this event, fishers resisted the FD attempts to enforce the November–December closed season on in-shore fishing gears (i.e., beach seines and gillnets), citing MALDECO and the FD's own continued fishing activities during the closed season. In theory, these trawlers are only allowed to function in the deeper waters where they would not harvest the *chambo* that come close to shore to breed during the closed season. In practice, however, these trawlers are known to fish close to shore at times, and their official catches cannot be taken at face value as they are known to offload fish to traders while out in the lake to avoid being held accountable for catches of immature *chambo*, and some collusion with FD enforcement personnel has been substantiated by Haraldsdottir (2002).[65] Therefore, while the late Director of Fisheries, explained the conflict as due to fishers' poor understanding of trawlers' impacts, their resistance may well have been valid (Chimwaza 2000).

Throughout the NARMAP program, the Central and Northern lakeshore districts re-

[61] This fishing fleet had been established by the Greek Yiannakis brothers in the 1930s and was nationalized within the Malawi Development Corporation (MALDECO) by President Banda in 1967. MALDECO was then sold to President Banda's Press Corporation in the early 1990's, and has continued to enjoy a close relationship with the DoF.

[62] Russell—Fieldnotes of FD archive—2002–06, Russell—Field notes of Nankumba community fishers—2002–06-10 and 2002–06-11.

[63] Russell—Interview with FD staff—2002–06-04.

[64] Russell—Field notes of Nankumba community fishers—2002–06-10 and 2002–06-11.

[65] Russell—Field notes of Nankumba community fishers—2002–06-10 and 2002–06-11.

ceived little financial and staff support to implement PFMP in their regions. Ironically, however, the case studies of Dwangwa Fish Sanctuary, Kambindingu Fisheries Association and Kaporo BVC (discussed next) parallel the case of Lake Chiuta in illustrating how a lack of financial incentives for BVC creation may actually help some Central and Northern Lakeshore communities achieve what the Southern communities could not.

New Cases of Successful Participatory Fisheries Management on Lake Malawi

The case studies discussed above illustrated the limits to our knowledge of the potential for fisheries co-management to play a significant role in managing Lake Malawi's fish stocks prior to 2000. Unfortunately, most of these case studies were around small, well-delineated water bodies or fisheries, and therefore their applicability to the much larger Lake Malawi continued to be judged by Western and Malawian scientists with skepticism. Having visited a large number of communities along the Malawian lakeshore in 2002, we selected a number of evolving local fisheries management case studies along the lakeshore for our research. One of the authors lived in these communities for almost two years (during 2003–2005), and used a combination of qualitative and quantitative research methods to document and analyze their institutional development and success. We present brief summaries of these case studies here, but a extensive description and analysis of these case studies can be found in Russell (2007).[66]

North Rukuru River Fishery: Traditional institutions decline due to environmental change

The North Rukuru River is one of Malawi's few remaining rivers in which traditional leaders continue to regulate the construction of fishing weirs during the rainy season. In 1946 Lowe (1952) recorded a total of eight fishing weirs constructed along the lower 13 mi of river. However, since the 1970s, severe erosion of the watershed has caused the river's tributaries to become silted up, turning them into seasonal rivers that are prone to flash floods. This situation has gradually diminished fishers' incentives to invest their labor in the construction of the fishing weirs, and the last time that one was constructed in the upper reaches of the river was in 2002. Fishers have continued to build the 2 fishing weirs nearest to the river mouth until 2005, where our data collection ends.

While up-river fishing weirs were owned by individual local chiefs, the river mouth fishing weirs fall under the jurisdic-

[66] Regarding confidentiality and the sources for the following case studies: A) North Rukuru River Fishery—This research is based on 1 group interview, 2 direct observation sessions, and 14 interviews, all of whose informants are confidential. However, TA Karonga is a public figure and his ownership of this institution is an officially recognized fact, therefore, his identity has not been altered. B) Chief Yiwemi BVC—This research is based on 6 group interviews, 4 direct observation sessions, 25 interviews, and 33 household surveys, all of whose informants are confidential. In order to protect these identities the names of this community and its chief have been altered. C) Dwangwa Fish Sanctuary—This research is based on 2 group interviews, more than 24 interviews, and 73 household surveys, all of whose informants are confidential. In order to protect identities the names of the communities have been altered. However, there is only one sugar cane estate along the lakeshore, therefore its identity and the respective Traditional Authority have not been altered. D) Kambindingu Fisheries Association—Based on roughly 100 interviews, and 300 household surveys, all of whose informants are confidential. In order to protect identities the names of communities and chiefs have been altered. However, as above, there is only large lagoon near the only sugar case estate along the lakeshore, therefore the name of the location, the company, and local Traditional Authority have not been altered.

tion of TA Karonga, and 16 chiefs who can claim direct descent from two royal family lines have the right to participate in this fishery. In order to minimize conflicts between these communities, TA Karonga maintains a rotating roster that determines each community's turn to participate. On the basis of this roster, three out of 16 eligible village chiefs are selected each year to join TA Karonga's village in the construction of one of the two fishing weirs. Furthermore, in order to ensure that sufficient fish pass upriver to be caught in the up-stream weir, construction of the lower weir is delayed by three weeks after the upper fishing weir is constructed.

The construction of these fishing weirs is associated with a ritual blessing by TA Karonga or one of his senior councilors, and in recognition of his traditional role as the provider of fertility, the first large catch of fish is brought to the chief in homage. Furthermore, following the construction of the fishing weir, no other fishing is permitted in the river or within a ¼-mile zone in the lake or along the shoreline. This form of fishing and its institution have remained unrestricted by any government regulations, except for the colonial regulation requiring that chiefs leave a gap in the middle of fishing weirs, a rule that continues to be ignored. Despite their institutional independence, these institutions are declining due to declining catches of *mpasa* and *sanjika*, and fewer younger community members want to participate in this practice.[67] Indeed, most younger fishers prefer to fish the river with drifting gillnets, and as happened in the Lufilya River since the end of its weir fishing institution in the 1970s, the N. Rukuru River fishery will likely transition into a drifting gillnet fishery free from chieftain regulation.

[67] In the fishing weir observed, a number of fishing slots were empty due to a lack of interest in communities to take part.

Chief Yiwemi's enlightened leadership leads to fish conservation, community harmony and livelihood diversification

In the 1980s, the increasing local investment in beach seines at this beach in the far North of Malawi led to alarming fish stock declines through their disruption of fish breeding areas and the capture of juvenile fish. These declines were accompanied by rising conflicts associated with theft of fishing gears and fish, and the competition between fish traders vying to buy fish. To address these issues, Chief Yiwemi established a "fishery committee" in 1993 which was instructed to create rules regulating fisherfolk behavior in the water and on the beach. As the FD had embarked on the experimental co-management program at Lake Malombe that same year, the local FD representative supported the Yiwemi fishery committee's initiative, resulting in their incorporation into the national BVC program. Following the first few years of operation, this BVC had gained control over problems of theft, beach seine fishing during the closed season, and conflict between fish traders. The BVC members then lost interest and the BVC briefly became dormant.

The BVC held new elections in 1996, and its main goal was to improve hygiene and cleanliness on the beach. However, this BVC also lost interest quickly after a short-lived World Food Programme-sponsored "Food-for-Work" program paid the BVC members to remove invasive water hyacinth plants in return for bags of maize. BVC members blame the introduction of this economic incentive for the lack of BVC commitment after the Work-for-Food program ended 6 months later.

A third period of activity occurred after 2001, as growing numbers of visiting fishers and the growth in ownership of *chilimira* fishing gears raised new community concerns. As described by the BVC members:

• Visiting fishers benefit from local fish stocks at the local community's expense; their fishing gears are not always legal in dimensions; and they flood the local market with cheap fish, thereby decreasing local incomes, and increasing conflicts between fish traders.

• During the closed season or on windy days, *chilimira* fishers secretly fish in the rivers, areas considered important as shelter for juveniles and breeding.

New elections were held, and the third BVC directly tackled fishing regulation by establishing fees for visiting fishers, required registration of all fishing gears with the government, setting minimum fish prices, and enforcing bans on fishing in the rivers. By 2004, it appeared that the community had achieved its aims, and held a new election, allowing key leaders to retire from their roles. At the same time, a number of leaders from the (male) fisher and (female) fish trader groups, supported by the chief, established a cooperative aimed at decreasing livelihood dependence on fishing. With the ongoing guidance of the local FD extension worker, they attracted the support of a development NGO, the Evangelical Lutheran Development Program (ELDP), which has provided loans of seeds and livestock. Yiwemi Co-op has been very successful in earning income from their new activities, the first of which have been allocated to the single mother co-op members, and ELDP is now exploring the creation of a village banking scheme.

The success of these BVCs and co-op are considered by community members and extension workers as being in large part due to the quiet leadership provided by their chief who is always seen setting an example with his strong work ethic. Chief Yiwemi's view of his role reflects the sensitive balance needed to prevent chiefs' tendencies to monopolize community development gains for themselves:

"The government gave us, the chiefs, power, and people are very obedient.. [However] having a committee is important because sometimes chiefs are corrupt. No chief sits on this committee, but as chiefs we do need to be kept informed of that which is happening in the BVC."[68]

This community's successes are subsequently being used as a model by the local FD extension worker as he tries to motivate other communities to take a more active role in managing local fisheries.

Dwangwa Fish Sanctuary: Fishers' and land owners move from conflict to create a sustainable fishery

In the 1970s the Banda government invited the Lonrho company to establish a sugar cane estate in the remote Northern part of Nkhotakota District, relocating all local residents. The shoreline in front of this estate is a highly productive fish breeding area, however, and since the 1970s fishers have continued to ply these waters, fishing from temporary camps on the beach. These settlements soon became a source of conflict with the sugar cane company due to fishers' theft of sugar cane, the hazards created by their encroachment of the sugar cane fields, and fights with company workers who went to the beach to drink. In actions supported by the national government, Lonrho regularly chased away the fishers, and in 1987, both company employees and fishers recall an occasion when the company's security forces made them pack up their belongings and burned all of their grass/reed homes.

Soon after the government's move to democracy, the sugar cane estate was sold to the South African Illovo company. Additionally, a number of senior staff established the Dwangwa Branch of the Wildlife and Environmental Society of Malawi (WESM-

[68] Russell—Interview with chief—2004–03-09.

Dwangwa), which increasingly started to mediate between Illovo and the fisher settlements. This tense relationship between the estate and fishers was eventually resolved as both the utilitarian fishers and conservationist members of WESM-Dwangwa became concerned over local fish stock declines in the late 1990s. In a series of community meetings mediated by WESM-Dwangwa, FD and TA Kanyenda, all stakeholders reassessed the fishery-Illovo relationship that had contributed to the overfishing of local fish stocks.

This process resulted in a proposed compromise between Illovo and the fishers, which would address all parties' concerns. The central 12 km stretch of Illovo's shoreline was declared a sanctuary on May 19th, 2000, in which no settlement or fishing was permitted. However, fishers were allowed to establish nonpermanent settlements (named *Mpoto* and *Mwera*) at either end of this zone, and fishing leaders established BVCs that were trained by WESM-Dwangwa and the FD to enforce the closure of the sanctuary.[69] The FD also successfully supported the BVCs in applying to the USAID-funded COMPASS program for funding to purchase a motorized sanctuary patrol boat.

For the first year following its creation, the DFS functioned well. However, soon rivalries between the two communities over use of the patrol boat severely diminished the *Mpoto* community's commitment to the sanctuary. Nevertheless the *Mwera* community BVC continued to enforce the sanctuary rules quite effectively, as can be seen in the great wealth that has grown in both communities due to the recovery of the *chambo* stocks that are caught (mostly) on the margins of the DFS. The leader of *Mwera* BVC would also become a champion in the creation of the Kambindingu Fisheries Association, to be discussed below. It must be mentioned that *Mpoto* community was forced to relocate to another location in 2006 as extreme erosion of their shoreline pushed their shelters right up against the sugar cane fields.[70]

[69] Funding and logistical support for the training sessions were provided by Illovo.

Kambindingu Fisheries Association: Fish stock collapse forces fishers and leaders to regulate fishing activities and leads to institutional innovation

To the north of the Dwangwa Fish Sanctuary (DFS), the Kambindingu Lagoon is a key fish breeding area that supports a large *chambo* fishery. However, growth in fishing effort, in particular of beach seines during the 1980–1990s, resulted in a fishery collapse in 2000. The shock of this collapse was underscored by a growth in snail populations which filled the fishers' beach seines, and given TA Kanyenda's recent experience in the creation of the DFS, he proposed the creation of a similar fish sanctuary for the lagoon. With the support of WESM-Dwangwa and the FD, a series of community discussions were held, and given the high community dependence on the lagoon fishery, fishers only supported the establishment of a half-year closed season, but they did agree to completely ban the use of small meshed gillnets and beach seines. BVCs were created by WESM-Dwangwa and the FD in order to enforce these rules, and were incorporated into a "Kambindingu Fisheries Association" (KFA).[71] Additionally, in order to support enforcement of the closed season, the DFS was incorporated into KFA,

[70] This move was strongly contended and delayed by Mpoto community's leaders for over a year as the alternate beach did not provide the ready access to the Illovo estate's schools, markets, health clinics enjoyed from Mpoto beach. However, the government's Ministry of Lands supported Illovo's claim to the land, and Mpoto residents relocated either to the alternate beach suggested or to Mwera community.

[71] Though the Kambindingu fishery does not border on, or effect Illovo in any way, Illovo's financial and logistical support of WESM-Dwangwa has been crucial for WESM-Dwangwa's training of these BVCs.

and *Mwera* BVC agreed to help conduct patrols of the Kambindingu Lagoon with its motorized DFS patrol boat.

Following the first year, however, a number of divisions emerged between communities, chiefs and BVCs, that severely undermined the newly created KFA. Foremost, the gradual recovery of the lagoon fish stocks meant that a number of BVCs that were most dependent on the lagoon fishery stopped supporting the closed season. Consequently, senior Chief Mkati of the lagoon-dependent communities resented the fact that senior Chief Kunja, whose communities had ready access to the Lake Malawi's open water fisheries, was appointed chairperson of the KFA by their superior, TA Kanyenda. Additionally, some chiefs became resentful of the BVCs as many fishers, government and NGO extension workers, and scientists targeted their visits at BVCs rather than paying homage (both through the respect shown and gifts brought) to the village chiefs. A final source of jealousy among chiefs and BVCs alike has been the visible personal prestige that the *Mwera* BVC chairperson's visible leadership role within the KFA, and "ownership" of the DFS patrol boat have afforded him. For this variety of reasons several village chiefs, both senior chiefs, and several BVCs have actively undermined and circumvented each others' initiatives, as shown in the following quotes from fishing community members:

"What happens is this, if I am a BVC member I will send my crews to fish in one direction and I will go patrolling in the other direction. Right now they are not patrolling because it's the BVC members who have gears and who fish in the lagoon."[72]

"After they [BVCs] catch someone and confiscate their gears, they charge him a fine to get his gears back. Some committee members then tell the poacher that he can raise the cost of the fine in two nights of fishing, and that he can pay the fine in the form of fish or money! Even now, you can find some people eating *chambo* as relish in their homes, while lying that they are protecting the fish stocks."[73]

During 2003–2004, WESM-Dwangwa and the FD hosted a series of workshops to establish a common constitution for the KFA and its constituent BVCs, but the underlying conflicts were not addressed. These sources of friction were first aired during interviews with community leaders and were gradually addressed as the KFA took greater leadership over, and increasingly took over the cost of running its meetings from WESM-Dwangwa in late 2004 and 2005. Most significantly, the KFA held a meeting in March 2005 to which all chiefs and BVC chairs were invited, and at which the KFA adapted and added regulations to make them more enforceable and in which the conflicts between chiefs and BVCs were discussed and resolved. Although this institution is relatively young, it provides a model for better fisheries management at various scales incorporating both tradition and new community leadership roles.

Assessing Malawi's Current Patchwork of Fisheries Management Regimes

From the preceding discussion, we see that Malawi's fisheries are managed through a variety of different institutions, representing an array of scientific and governance approaches. By analyzing these experiences, their origins, and the respective roles played by government, chiefs, and communities, we can draw some conclusions about the factors that have enabled the success or contributed to the failure of different regimes. These regimes are presented in Figure 7, below, overlaid on a scale that represents a continuum from completely government-

[72] Russell—Interview with chief—2004–02-25.

[73] Russell—Interview with chief—2003–12-04.

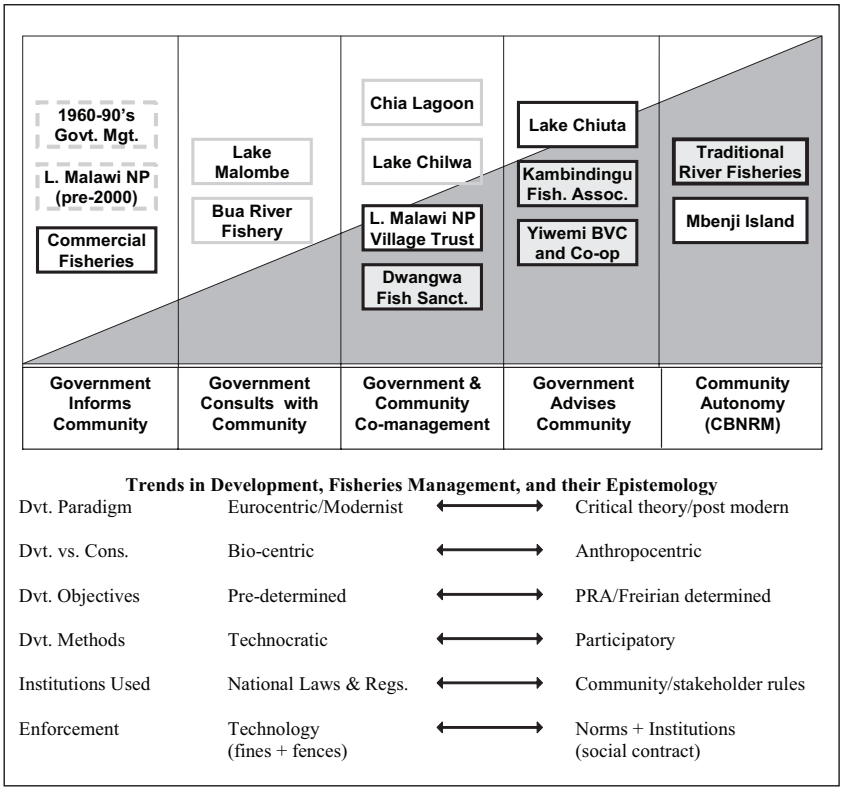


Figure 7. Continuum of present and past fisheries management regimes in Malawi, and their epistemological and technical bases.

directed regimes (i.e., "fences and fines") to complete community-based natural resources management (CBNRM) regimes (adapted from Pomeroy (1995)). CBNRM is the management of natural resources under a detailed plan developed and agreed to by all concerned stakeholders. The approach is community-based in that the communities managing the resources have the legal rights, the local institutions, and the economic incentives to take substantial responsibility for sustained use of these resources, Under the natural resource management plan, communities become the primary implementers, assisted and monitored by technical services. "Co-management" is a commonly-used label by resource managers to denote a resource management regime that lies at the center of the continuum, and has been defined as:

"a situation in which two or more social actors negotiate, define and guarantee among themselves a fair sharing of the management functions, entitlements and responsibilities for a given territory, area or set of natural resources" (Borrini-Feyerabend et al. 2000).

The format of each fishery regime's box within Figure 7, indicates its current status: dashed gray indicates a regime that has been abandoned; solid gray indicates a current regime whose success remains uncertain; solid black indicates a current regime that shows promise.

Whether a nation or an individual park selects a fisheries management regime toward the CBNRM or the governmental end of the continuum depends on the specific social, economic, political, and ecological context of the resource and its national and local stakeholders. Indeed, the management

needs for a specific area may change over time, requiring revisions of once-successful NRM regimes. In addition to changes in the local context, such NRM revisions may be prompted by our evolving understanding of ecological and social processes, re-alignment of national governments' goals, or changing ethical standards regarding the amount of input that local stakeholders should have in determining NRM regimes.

CBNRM: Chieftain-based fisheries regimes

In Malawi's early colonial history, the government imposed few restrictions on fishing activities, leaving the management of key river and beach seine fisheries up to traditional chieftain-based institutions, and the rest of the lake was "open access."[74] Although one could argue that these river management institutions represented a traditional centralized control over the resource, we have placed it under CBNRM due to the fact that traditional chiefs generally did not have the power to impose regulations on their subjects, rather maintaining their control through delicate balances of ritualized economic exchanges. With the exception of the governmental imposition of a gap in fishing weirs, these institutions have not been altered significantly by national governments, although depletion of fish stocks and siltation of the rivers is threatening to make these institutions irrelevant. Nevertheless, despite the spread of modernity and democracy in Malawi, the institutions of TAs and chiefs have proven to be resilient and adaptable in some contexts. Similarly, based on an adaptation of this traditional leadership role, the Mbenji Island fishery has remained a sustainable institution, although its dependence on the leadership of an individual leader may make it less sustainable in the long run. The enforcement of regulations in both cases ranges from informal sanctions to formal fines. Reflecting conclusions by Hara et al. (2002), and Allison and Mvula (2002), these cases illustrate the enduring symbolism and authority that may be harnessed by chiefs, and underscore the need to recognize chiefs as important stakeholders, whose active support is crucial for any fisheries management regime.

"Fines and Fences:" Government-based fisheries regimes

At the other extreme of the management spectrum, the government's attempts to manage Lakes Malawi and Malombe scientifically prior to the early 1990's proved a failure, which can be attributed to a combination of factors. This regime was based on a Western, technocratic, bio-centric paradigm that neglected the social and economic priorities of its stakeholders by its focus on managing exclusively for a Maximum Sustainable Yield of *chambo*. By not recognizing the fishers as legitimate stakeholders, the government was forced to impose its vision by force and intimidation. Similarly, Lake Malawi NP was established against the wishes of the local communities, although with the support of international conservation organizations and researchers who prioritized bio-centric research goals. Given that the communities were largely dependent on the local terrestrial and aquatic resources, and as they received little direct benefit from the tourism that the park attracted, the government would have required much greater enforcement resources to succeed. On the other hand, the government's management of the commercial fisher-

[74] Though this is not always considered a form of management, this label refers to the absence of any regulatory institutions over peoples' interactions with the fishery, a natural condition for any resource that is considered limitless as there is no sense in owning a resource that is freely available to all. Open access also describes the "Tragedy of the Commons," a situation when existing resource management institutions collapse leading users to pursue short-term individualistic goals at the cost of the common good (Hardin 1968).

ies sector in Lake Malawi has proved reasonably successful due to the limited number of fishing vessels involved although accusations of government complicity in illegal fishing activities hampers its efforts to establish sustainable co-management regimes with small-scale fishers in Southern Lake Malawi.

Government-led Co-management regimes

The stakeholders of the Bua River and Lake Malombe fisheries have both experienced extensive government repression and intimidation, and both of their key fisheries can be regarded as highly degraded. In order to reverse these trends, the Malawian government has attempted to establish co-management regimes in both locations with extensive support from foreign donor agencies and NGOs. However, in both cases, the government (or foreign sponsors) set the management objectives along predetermined bio-centric rather than stakeholder-defined lines, and the resultant regimes failed to compensate stakeholders for their sacrifices. Both of these regimes remain in existence though they do not operate as intended, and a significant governmental and foreign sponsor revision of objectives, or means of achieving them is necessary.

Community-led Co-management

The cases of Lake Chiuta, Kambindingu Lagoon, and Yiwemi BVC represent scenarios in which local fishery stakeholders designed new institutions to address local ecological and livelihood threats with some advice from the government. These institutions came about in spite of the poor leadership provided by local political and/or traditional leaders, and the national government's role has primarily been to act as an advisory and capacity-building resource and external legitimizing agent (although the governments' in/action has at times also undermined BVCs and Fisheries Associations). Realistically, these novel arrangements, which have been largely determined by local stakeholders' needs, are the type of co-management approach which the government will need to model their extension programs on due to the FD's lack of field personnel and resources. Crucially, these three cases also display the beneficial or counter-productive roles that might be played by different chiefs. Indeed, chiefs who do not reflect community needs through their management cannot be described as CBNRM rather they are rent-seekers. Conversely, however where detailed analysis of chieftain-led regimes indicates widespread local fisherfolk support, or where successive chiefs have been able to maintain such an institution, this regime may arguably be described as CBNRM as it reflects fisherfolk priorities. Therefore, although chiefs have proven vulnerable to corruption, in some cases they may provide the driving force and ongoing motivation behind successful community-based fisheries management (as in Yiwemi BVC, and to a certain degree the Kambindigu Lagoon). Where chiefs have been excluded entirely, however, as at Lake Chiuta, they may prove highly disruptive. While these regimes have benefited from prevailing participatory management concepts, each of these institutions has been molded by its leaders to reflect the unique local ecological, social, economic, and political contexts, and their abilities to continue reacting to these will determine their sustainabilities.

True Co-management: Government and Communities explore the way forward

We have categorized the Chia Lagoon Fisheries Association and Lake Chilwa Fisheries Association, as true co-management regimes for the reason that the government and communities are both involved in helping to explore and define new fisheries management regimes. While these institutions have been informed by western "co-management" mod-

els and supported by foreign donor agencies, the stakeholders seem to have adapted the concept to suit their local social context. Chia Lagoon Fisheries Association did not seem very hopeful until the recent facilitations conducted by the government and NGO staff enabled fisher stakeholders to gain a more level footing with their traditional leadership. This program is still in its infancy, however, and real results remain to be seen. We have also included the Lake Malawi NP Village Trust program and the Dwangwa Fish Sanctuary in this category. Although the objectives of the Village Trusts were predefined by the government, the communities have assumed a significant ownership over the resource base and are benefiting directly from the livelihood diversification projects and tourism concessions in their communities. Similarly, co-management in the Dwangwa Fish Sanctuary may be regarded as being an unequal partnership between the sugar cane estate and fishing communities, however, these communities have been able to gain significant livelihood benefits from the sceme. These schemes have also been informed by a Western co-management paradigm based on models that have had some success in other African countries, however, the extent to which local stakeholders have been able to shape them has defined the limits to their successes.

Malawi's Fisheries Co-management Policies and Targets for the Future

Since the year 2000, significant attention and funding has been focused at understanding and addressing the challenges that fisheries co-management has faced in Malawi. Of particular note, the USAID-funded COMPASS I and COMPASS II projects have played key roles in facilitating these learning processes associated with community-based natural resources management.[75] For the benefit of policy makers, resource managers, and scientists, COMPASS I-II have sponsored a number of workshops and conferences and provided avenues for the dissemination of a large array of reports from practitioners involved in all aspects of CBNRM in Malawi. Additionally, they have provided financial support to environmental NGOs and community-based organizations throughout the country. With this support, Malawi's fisheries management laws and policies have continued to be revised, with increased prominence being given to the roles and capacities of BVCs to manage local fish stocks.

While the 1997 Fisheries Conservation and Management Act first provided the FD with a legal mandate to delegate some fisheries management responsibilities to BVCs and Fisheries Associations, the emphasis in this act remained on the centralized government's roles in resource protection. However, with the government's subsequent adoption of the:

•Fisheries Management and Aquaculture Policy, 1999,

•Fisheries Conservation and Management (Local Community Participation) Rules, 2000,

•Fisheries Conservation and Management Regulations, 2000

•National Fisheries and Aquaculture Policy, 2001, and

•Chambo Restoration Policy, 2003, the national emphasis has shifted to empowering local fisherfolk control over the fisheries resources under their jurisdiction. More specifically the Fisheries Conservation and Management (Local Community Participation) Rules of 2000 empower the BVCs to enforce fishing regulations pertaining to closed seasons, fish sanctuaries, restrictions on gear size and type

[75] For more information, see the COMPASS homepage (http://www.compass-malawi.com/cvision2.htm).

and methods of fishing, and confirms their ownership of the fishery by enabling them to limit access to the local fishery to local BVC licenseholders, etc. This is also supported by Schedule 6 to the 1997 Fisheries Conservation and Management Act. Closely associated with this progress toward devolution of fisheries management roles to communities is the National government's decentralization policy that is devolving most governmental functions and line ministry direction to District Assemblies (Trick and Manning 2002).

Despite these significant advances in fisheries co-management policies, "legal toolboxes," capacity building of senior government staff, and a proliferation of gray literature describing the reasons for BVC failures and successes, little of this capacity building has been focused at the field staff in their remote living and working locations. Although the District Fisheries Officers are supposed to transfer knowledge gathered at workshops to their field staff, due to financial constraints and a lack of administrative oversight, little training is conducted. In their analyses of Malawian government reforms, several authors have documented the increasing gap between senior management and junior staff, whose access to workshops, promotions, and job-security is dependent on patron-client relationships, a situation which has led to widespread misappropriation and abuse of government resources (Anders 2002; Chinsinga 2002; Englund 2002).

This marginalization of FD field staff was evidenced during a workshop conducted by one of the authors to provide a venue for field staff from the Northern half of the lakeshore to share experiences and lessons about co-management inside and outside Malawi (Russell 2003).[76] Most of the field staff did not possess copies of any regulations, legal tool-boxes, and guidelines that they are supposed to implement, and in general had a poor understanding of how their roles were supposed to change in light of the transition from centralized to community-based fisheries management (Russell 2003). Similarly, most BVCs have been shown to be sorely lacking in literacy, finance, and management training, which can partly be attributed to the poorly paid, motivated, trained, and supervised field staff responsible for this task (Kamperewera and Wilson 2003; Russell 2003; Allison and Mvula 2002). BVC capacities for management of local resources are also currently undermined by the general conception among BVCs that their membership is limited to the10 elected individuals when in fact all fisherfolk are identified in the Fisheries Conservation and Management (Local Community Participation) Rules as being members, and therefore have the right to hold BVC committee members accountable for their actions. Finally, the roles of the Traditional Authorities in fisheries co-management remains ambiguous and poorly addressed by co-management policies, and due to the factors mentioned above, they receive little sensitization from FD field staff. Nevertheless, although they hold no official positions in the management of local fish stocks, their customary roles as adjudicators and mediators make their support of local BVCs crucial (Hara 2001; Trick and Manning 2002).

As has been seen in the cases discussed above, although the government is paying extensive lip-service to the notions of decentralization and co-management (thereby assuring its access to donor funding), a paradigm of centralized management remains entrenched in the FD, a phenomenon reflected in other government departments (Dobson 1997; Englund 2002). As described by Chinsinga (2002), such hierarchies tend toward *instrumentally* participatory programs (i.e., in which local communities participate in projects that are predefined by the government) rather than

[76] This workshop, sponsored by the U.S. Embassy small-grants program, was organized by one of the authors to provide co-management training for the lakeshore district field staff in the districts of Karonga, Rumphi, Nkhata Bay, Likoma Island, and Nkhotakota.

transformational ones (in which the communities' priorities define the development projects), thereby diminishing any local empowerment objectives. Despite having been proven effective in empowering the Chembe Village Trust in Lake Malawi National Park by DWNP, the FD's apparent hesitancy to use the empowering Trustees Incorporation Act of 1968 to give BVCs a legal personality and power to claim and defend ownership over natural resources within their land and waters questions the extent to which empowerment of BVCs is the actual FD goal. Similarly, donor agencies' support of fisheries co-management has tended to reinforce this pattern by focusing most of their capacity-building efforts on strengthening the managerial elite and paying little attention to the needs of the field staff.

In a similarly disruptive tendency, donor agencies' frustration with local governments, and their need to show rapid results, has led to increasing NGO usurpation of the local governmental roles as conduits for local capacity building (Chinsinga 2005). Chinsinga (2005) found that while this may result in short-term successes for the NGOs and their target communities, the long-term effects on the local governments and communities may be overwhelmingly negative. This has been borne out by the FD field staff's experiences: communities have become accustomed to being paid to participate in donor agency and NGO programs and are unwilling to continue when external funding for the program inevitably ends (Russell 2003). In addition to the effect on the sustainability of these particular programs, the widespread provision of incentives (in the forms of sitting allowances, refreshments, t-shirts, travel to workshops) by *any* NGO in a region is diminishing *all other* government staffers' abilities to conduct any capacity building due to their inability to offer similar financial incentives (Russell 2003). These issues contribute significantly to the low morale and unethical behavior observed on the part of government field staff.

These long-term capacity-building needs are not issues that most donor agencies, driven by short-term project cycles, are willing or able to address, and therefore, much capacity building tends to reflect a technocratic rather than humanistic bent as was reflected in the recently discontinued NARMAP research program (Figure 8).

As can be seen in Figure 8, the historical tendencies for donor agencies to promote bio-centric research agendas to the exclusion of the real "messy" social, cultural, political, and economic issues that are confounding the FD's attempts to establish co-management regimes continues (Ferguson and Derman 1993; Weyl 1999; Allison and Mvula 2002). Unsurprisingly, this orientation of priorities were reflected in the FD's identification and prioritization of research efforts, a characteristic of this chronically underfunded agency that has taken on all short-term donor projects regardless of their alignment with national priorities (Allison, Mvula et al. 2002; Hara, Donda et al. 2002). Consequently, we find that the entire contribution toward better fisheries management from the social and economic sciences was limited to a single economic study that will have little to no impact on fisheries management itself (see highlighted entry in Table 1).

Conclusion: How to Make Use of Our Natural Adaptive Management Experiment.

The foregoing discussion has attempted to provide the reader with an overview of how the roles of different stakeholders and institutions in fisheries management have evolved during the past century. Traditionally, most open-water fisheries were unregulated, while access to many river fisheries was controlled by chiefs based on their roles as spiritual mediums and governance/military leadership. Colonialism subsequently encouraged Malawian entrepreneurialism related to fisheries,

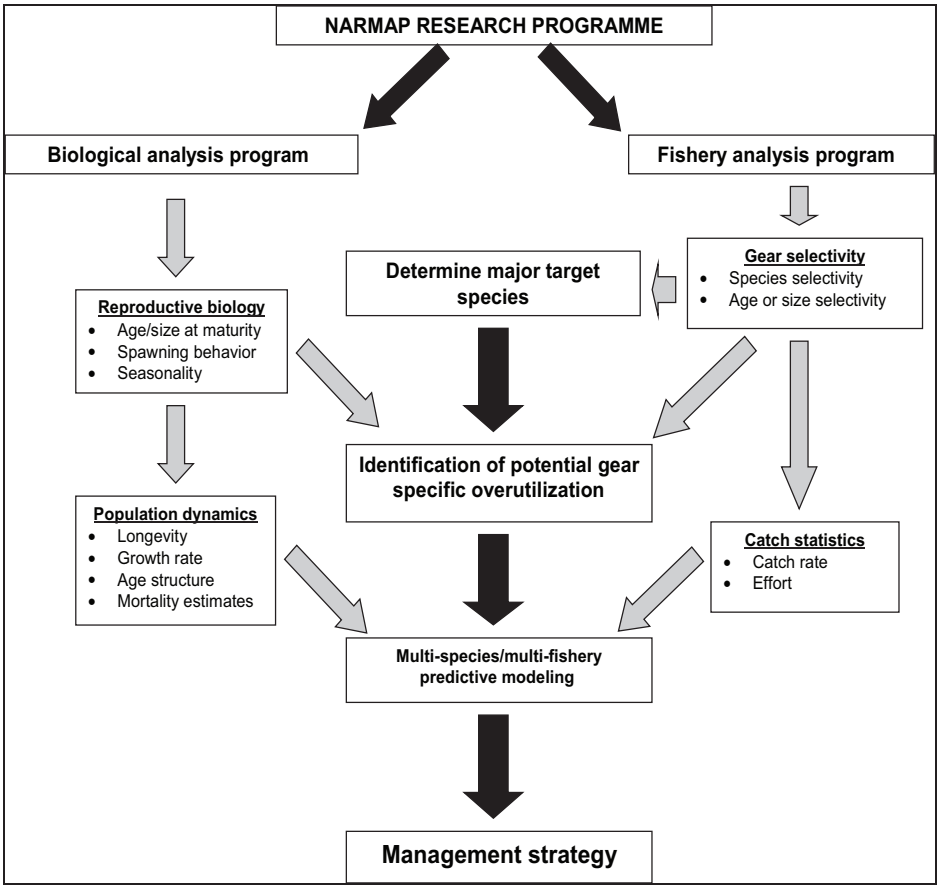


Figure 8. NARMAP Research Programme, 1999 (Weyl 1999).

but simultaneously attempted to raise chiefs' roles to that of local governmental representatives. Both of these efforts resulted in a decline of chiefs' roles in fisheries management as well as in the community as a whole, a trend that continued under the postindependence dictatorship. Claiming a mandate from the newly-independent nation, the dictatorship introduced a centralized 'scientific management' paradigm to fisheries management. This regime was unsuccessful due to resistance by fishers, leading to the sharp declines in key fish stocks in the early 1990s.

Since 1993, the newly-democratic government has embarked on a participatory fisheries management program, and throughout the country a variety of stakeholders have embraced the opportunities offered by this new paradigm. However, while most claim to be motivated by a desire to protect fish stocks from overexploitation, the challenges illustrated above demonstrate the highly contentious nature of these regimes. In most cases, control over fisheries co-management institutions and their access to resources have been the targets of contention between chiefs, BVCs and FD staff, and their respective adherents. Additionally, while not official participants in fisheries co-management, donor agencies and NGOs have similarly influenced (in some cases negatively) the success of these regimes through their influence on policy, and control and access to resources.

Table 1. Ranking of Fisheries Department Research Projects for 2000–2001. (Banda, Chisambo et al. 2000)

Project Title	**Priority**
Biological management parameters for target species in Lake Malawi	1
Monitoring of catch and effort in artisanal fisheries	1
Demersal monitoring surveys	1
Kauni Fishery selectivity survey.	2
Chilimira fishery selectivity.	2
Gillnet selectivity surveys.	2
Handline catch assessment and gear selectivity.	2
Traditional gear selectivity surveys (Northern Lake Malawi)	2
A preliminary study of the effectiveness of monofilament gillnets in Lake Malawi	2
Lake Malombe assessment programmes	2
Lake Chiuta assessment programmes	2
Commercial pair trawl selectivity	3
Trawl net selectivity survey	3
The economics of processing and distribution of small scale fishing in Lake Malawi	**3**
Demersal exploratory surveys	3
Pelagic exploratory surveys	3
Limnological Surveys	3
Aquatic ecology and fisheries of Lake Chikukutu	4
1= highest priority requiring immediate action for monitoring; 2 = high priority requiring action; 3 = intermediate priority requiring action but can be done *ad hoc*; 4 = low priority can be done if and when funds are available.	

This wide array of participatory fisheries management institutions, while not designed as such by the government, provides fishery managers and scientists with a *de facto* adaptive management regime. By understanding the contentious nature of the introduction of new institutions in this variety of case studies, a number of key lessons may be drawn out to inform the government's ongoing support for, and introduction of, fisheries co-management throughout the country. First of all, success has taken a number of shapes in different cases, depending specifically upon local political, social, economic, and ecological conditions. Therefore, rather than attempting to apply a centrally-designed blue-print to all locations, the government should rather become more intimately appreciative of the local conditions, and help the communities to create institutional frameworks that suit the specific local conditions mentioned. Additionally, to prevent elites or chiefs from dominating these institutions, the government needs to ensure that all stakeholders are effectively represented in BVCs and given adequate opportunities to voice their opinions regarding any proposed regulations. In addition to the local participants in co-management, donor agencies and NGOs will need to make significant qualitative changes to their support of the FD: toward ensuring greater funding, training and support for field staff rather than the upper management; and toward encouraging a long-term perspective of capacity-building in the FD and of BVCs, rather than intervening in local institutional growth by introducing perverse incentives that will ensure short-term successes.

Overall, the FD and donor agencies need to incorporate a greater appreciation of the "messy" institutional, social, and economic processes that determine the co-management success or failure. Rather than seeking to impose frameworks that can be claimed to result in rapid successes, these agencies must become more willing to actively engage local stakeholders (including FD field staff) to help them to design locally-appropriate institutions. Additionally, scientists and practitioners need to recognize that fisheries are not the last recourse of the poor. As discussed by Allison and Mvula (2002), they are the primary engine of rural economic growth in lakeshore areas, and provide key sources of capital investment for local agriculture and other businesses. The FD and its donor agencies cannot expect to achieve sustainable fisheries management unless the BVCs become more than fisheries regulating bodies and also facilitate fisherfolks' access to credit and extension in support of supplementary livelihood activities, much as has been the case in Yiwemi BVC and Lake Malawi NP Village Trusts.

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